a W. R. C. Smith publication

FIFTY CENTS

Textile Industries

Formerly "COTTON"

APRIL 1960

2 special sections:

TUFTED TEXTILES

Mill report on 501 nylon in tufted carpets is one exclusive feature in this fifth annual review

pages 87 - 126

KNITTING

How to knit sweaters from Agilon, dyeing Orlon fabrics, seamless and full-fashioned hosiery developments

pages 161 - 192

Do your cleaning at the picker

page 127

Wool finisher's high-price specialty

page 140

Mill report on magnetic top rolls

page 139

Slub catcher pinpoints defects

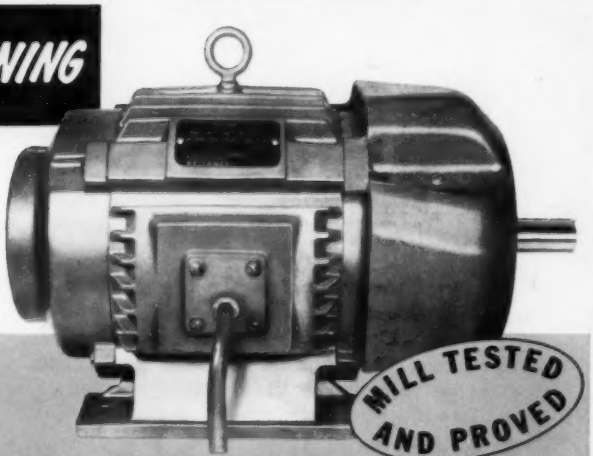
page 145

NO MORE MOTOR CLEANING

The *new* Duty Master Lint-Proof Textile Motor is totally enclosed, positively eliminating lint-clogging. Lint-filled air cannot penetrate the sealed motor housing, and the high velocity cooling fan blasts lint off the outside of the motor.

It will pay you to try these new textile motors and see how they cut operating costs by eliminating motor cleaning.

Now available—1-40 hp. general purpose, textile motor for application on spinning, roving, drawing, and twisting frames . . . and on cards, openers, pickers, and other textile machines. B-1568-B



MILL TESTED AND PROVED

IT'S LINT-PROOF

RELIANCE ELECTRIC AND ENGINEERING CO.

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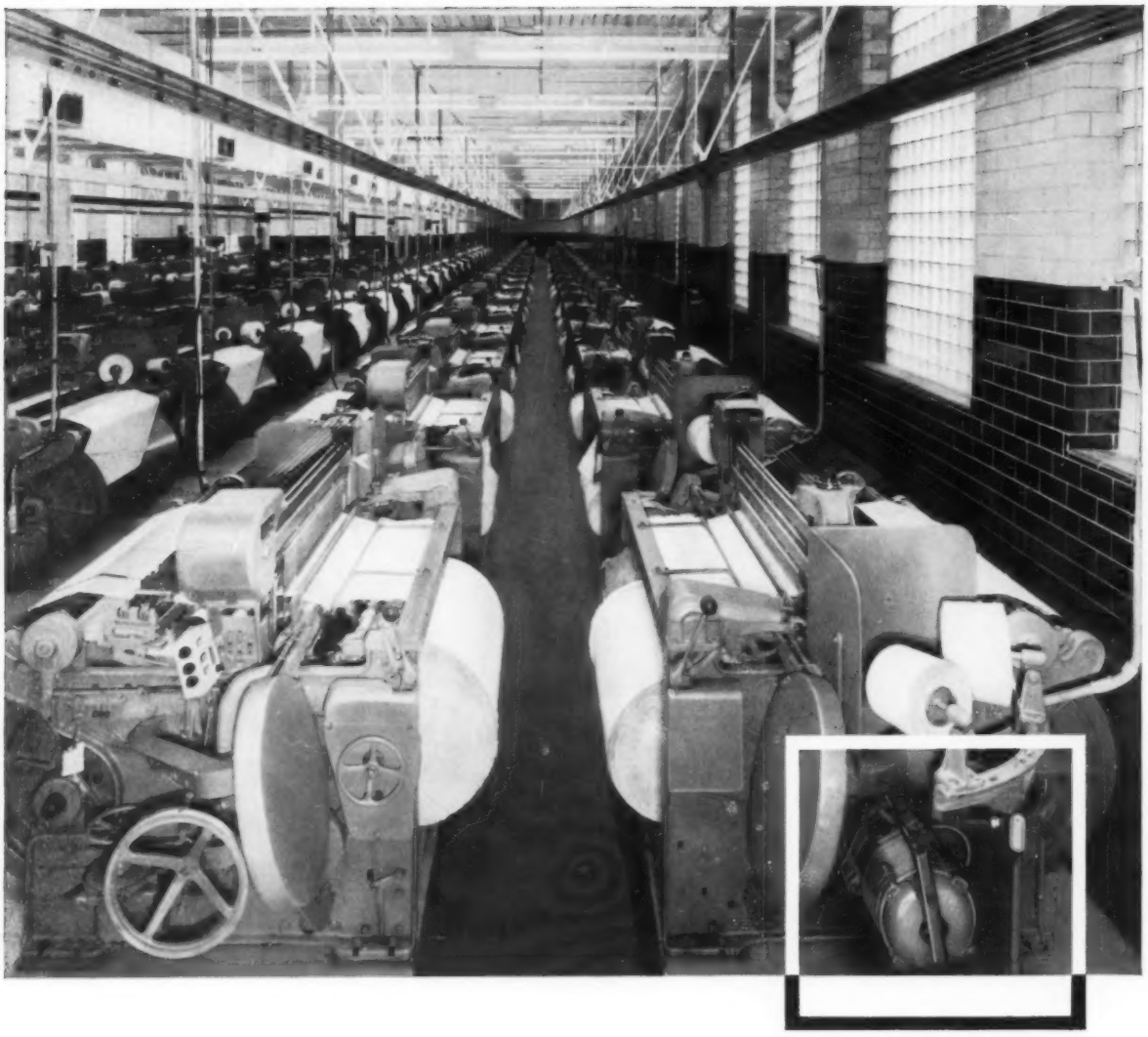
Canadian Division: Toronto, Ontario
Sales Offices and Distributors in Principal Cities

Duty Master A-c. Motors, Master Gearmotors, Reeves Drives, V*S Drives, Super 'T' D-c. Motors, Generators, Controls and Engineered Drive Systems.

Next month . . . ATLANTIC CITY SHOW PREVIEW



DIEHL* power transmitters drive new-type shuttleless loom

The spectacularly new, compact, low silhouette shuttleless looms, recently introduced by Draper Corporation, Hopedale, Massachusetts, are shown on the line at Pepperell Lindale. Among the advantages claimed for the new design looms are . . . increased production speeds . . . economy . . . easier operation by weaver and fixer . . . and a considerable reduction in noise level.

To drive this new loom with maximum efficiency and utmost reliability, DRAPER selected the DIEHL Power Transmitter . . . an inverted-type high inertia motor combined with a fast, positive, clutch-brake mechanism. The motor provides "stored energy" for smooth, fast starts and positive picking . . . maximum inertia with minimum size. The clutch-brake assembly is removable as a unit for maintenance, without disconnecting the motor from the loom frame, and features a clutch-actuating bearing mounting which assures full self-alignment of bearing for maximum life.

DIEHL Textile Motors and Power Transmitters can increase production and efficiency—at lower operating costs and less downtime—in your mill. Specify them for your textile machinery.

*A Trademark of DIEHL MANUFACTURING COMPANY

Diehl*

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Electrical Division of THE SINGER MANUFACTURING COMPANY

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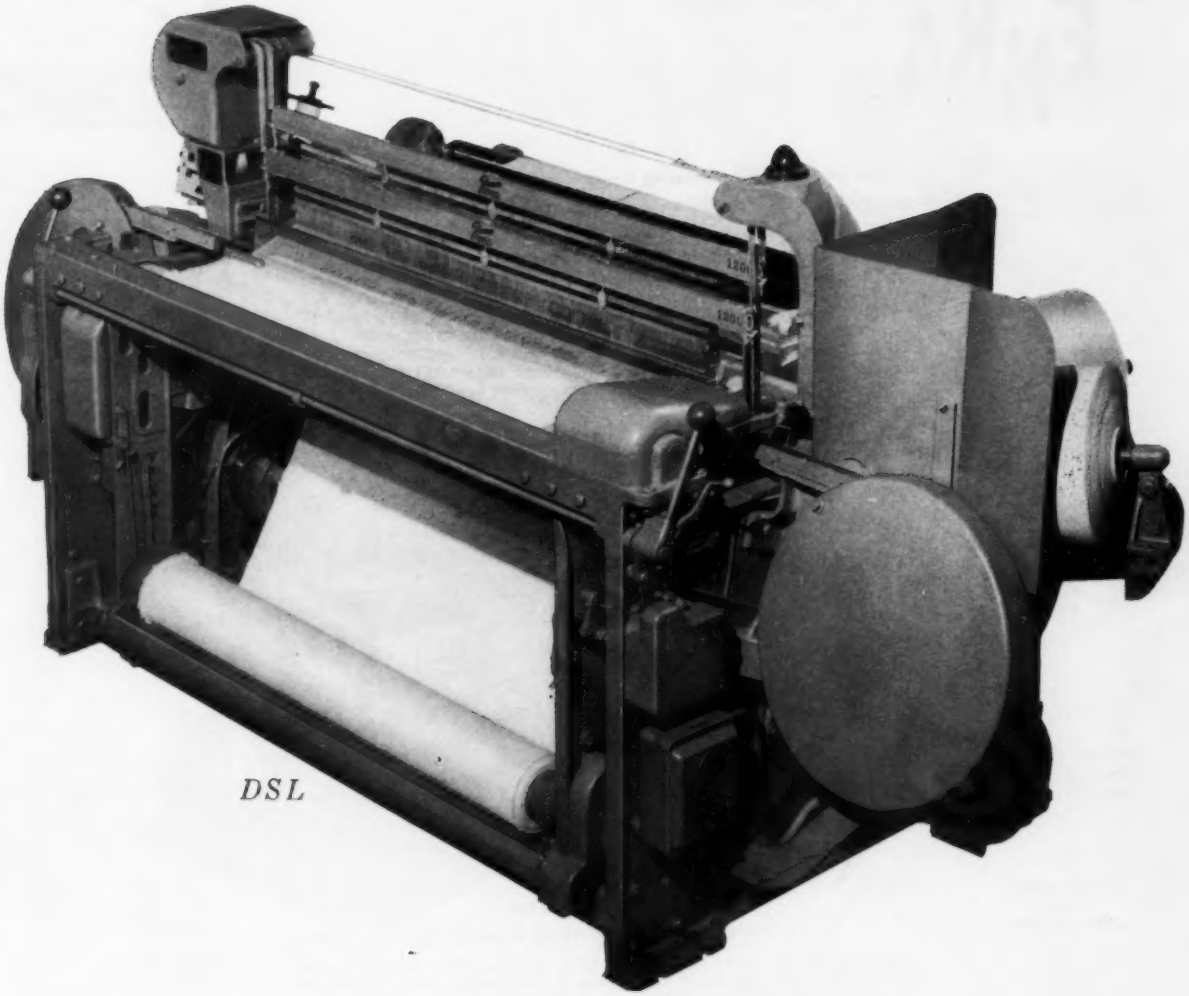

DSL

Newest
member
in our
family
of
Looms

DRAPER CORPORATION

HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N. C. • SPARTANBURG, S. C.

ATMA Parade of Progress

So many good things begin with

ENKA

PROVIDENCE, R. I.
DISTRICT SALES OFFICE

New Enka Merchandising Center and New York District Sales Office at 350 Fifth Ave., New York 1, N. Y. PE 6-2300

To meet the needs of increased yarn production, Enka has expanded its Merchandising Department, located in new quarters in the Empire State Building, effective March 28th. Enka has intensified its merchandising coverage of the apparel, knit goods, home furnishings and household textiles markets from the mill level to the retail counter. In step with the company's program of aggressive merchandising and advertising support for customers' products containing Enka yarns and fibers, the New York sales and technical service operation also has been enlarged to serve you better.

GREENSBORO, N. C.
DISTRICT SALES OFFICE

LOWLAND, TENN.
PLANT

CHATTANOOGA, TENN.
DISTRICT SALES OFFICE

New Headquarters for Enka Marketing Division at Enka, North Carolina

This brand-new corporate office building, adjoining the company's plant and research center at Enka, North Carolina, will house Enka's centralized top management, effective March 21st. Recognizing that every phase of the company's operation is related to the sales function, Enka has headquartered its Marketing Division in the South to form a closely-knit management team composed of Marketing, Research, Manufacturing, Finance and administration. This major step to achieve total marketing efficiency means improved service for Enka customers.

A growing American Enka Corporation ...on the move to serve you better

Expansion by American Enka Corporation of sales, technical service and merchandising manpower in New York; centralization of top management in North Carolina; and the strengthening of district sales offices mean increased selling and merchandising efficiency for our customers, their customers and all who use Enka rayon and nylon yarns and fibers in their products.

PLANTS: Enka, North Carolina, Nylon yarn, rayon yarn, Tyrex* tire yarn; Lowland, Tennessee, Rayon staple, Tyrex* tire yarn, Jetspun* and Skyloft* solution-dyed rayon.

No change will occur in the day-to-day contact Enka customers have with the company's sales and technical service representatives. Enka personnel will continue to serve you as they have in the past, from these district sales offices:

DISTRICT SALES OFFICES: New York: 350 Fifth Ave., New York 1, N. Y., PE 6-2300; Providence: 2009 Industrial Bank Bldg., Providence 3, R. I., GAspee 1-2494; Greensboro: 428 Jefferson Standard Bldg., Greensboro, N. C., BRoadway 2-0114; Chattanooga: 871 McCallie Ave., Chattanooga, Tenn., AMherst 6-2134.

*Tyrex (Reg. U.S. Pat. Off.) is a collective trademark of Tyrex Inc., for tire yarns and cord.

American Enka Corp., Enka, North Carolina · Producer of rayon · nylon · yarns · fibers

Textile Industries

Formerly "COTTON"

1960 VOL. 124, NO. 4

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NBP BPA

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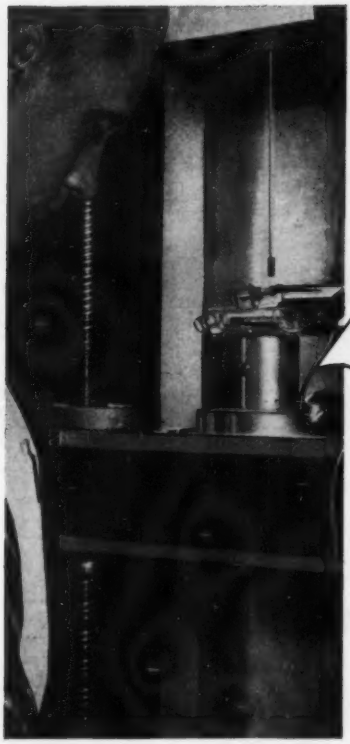


Vitel

*means "Freedom"**

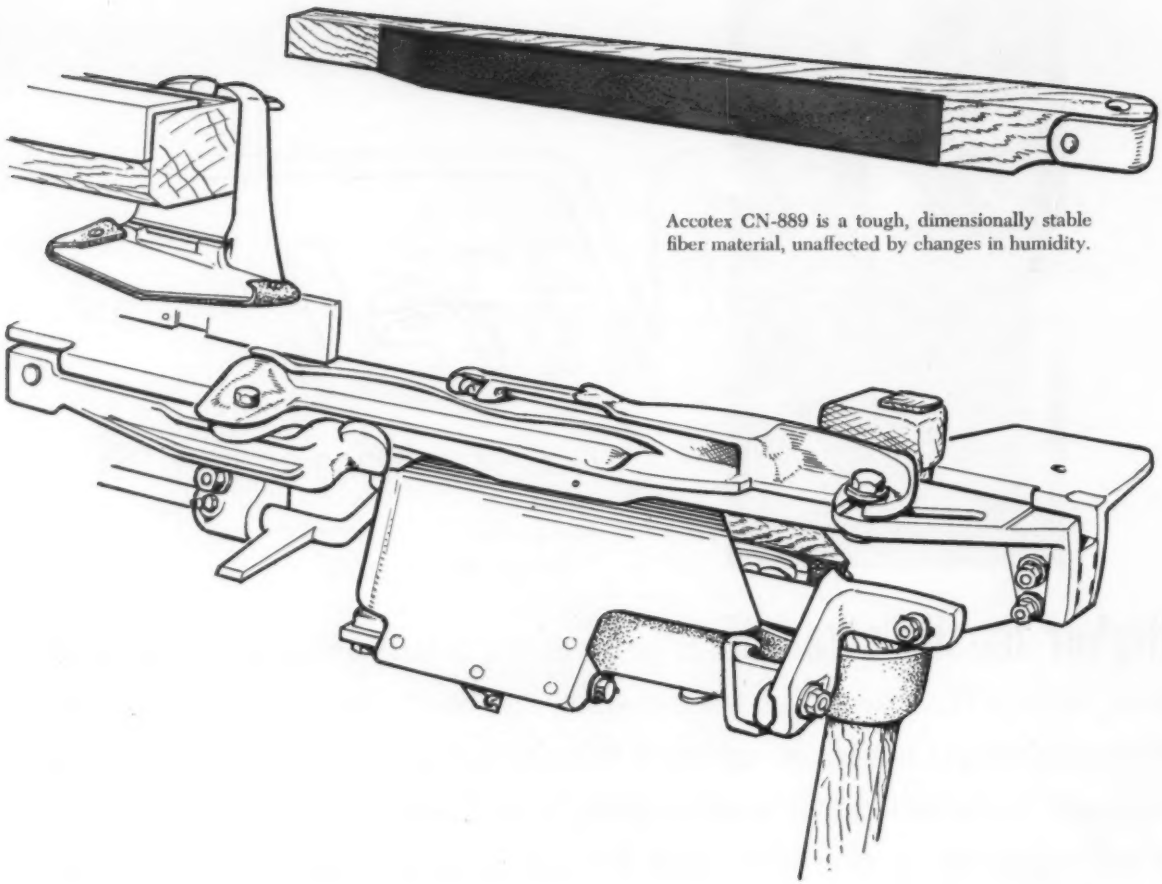
Higher tensile strength is another important advantage of spinning fiber from VITEL, newest of the polyester resins. As exemplified in VYCRON (America's most advanced self-care fiber by Beaunit Mills, Inc.), this superior strength (established in standard tests by U. S. Testing Company) results in outstanding mill performance and the use of single instead of plied yarns. Result: Stronger, fine count fabrics. Example: A voile fabric made with VYCRON is 25-30% stronger than with the next strongest fiber. Further details? Just write Goodyear, Chemical Division, Dept. **P-9439**, Akron 16, Ohio.

Other Advantages of Fibers Spun from VITEL:
Superior resistance to abrasion and pilling
Outstanding dyeability and colorfastness
Excellent wrinkle resistance - ideal for wash-and-wear
Easy processability on standard milling systems

GOODYEAR
CHEMICAL DIVISION

*NEW FREEDOM IN THE *MANUFACTURE* OF A WIDER RANGE OF WONDER FABRICS

Vitel—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio
Vycron—T. M. Beaunit Mills, Inc., Fibers Division, New York, N.Y.



Accotex CN-889 is a tough, dimensionally stable fiber material, unaffected by changes in humidity.

New loom binder material from Armstrong wears much longer, needs less resetting

Important savings in labor and reduced loom down time are made possible by Accotex CN-889, a new loom binder material developed by Armstrong.

CN-889 wears much longer than natural materials, even with heavy plastic shuttles. And it requires less resetting and break-in time. As a result, shutdowns for binder replacement and resetting are substantially reduced.

In addition to these advantages, CN-889 actually costs less than other materials. It comes in strips cut to size, ready to attach to your binders and box fronts.

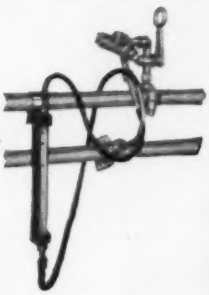
Try CN-889 on your looms. Your Armstrong man will arrange for a test. Get in touch with him today or write Armstrong Cork Company, Industrial Division, 6904 Ivy Street, Lancaster, Pennsylvania.

Armstrong LOOM SUPPLIES

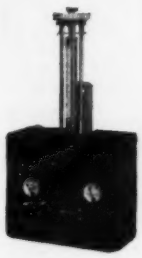
1860–1960 Beginning our second century of progress

These Amco Air Conditioning Devices are designed for close control of atmospheric conditions within your mill

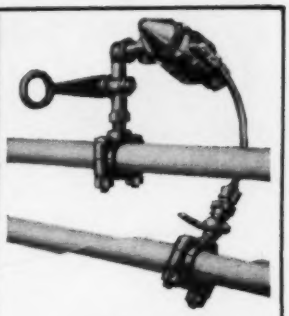
No. 6 Atomizer



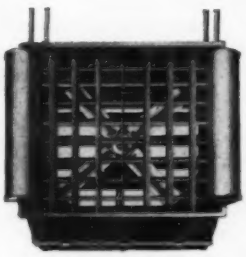
Atometer



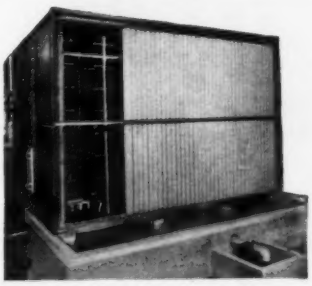
Humidity Control



Aeromizer

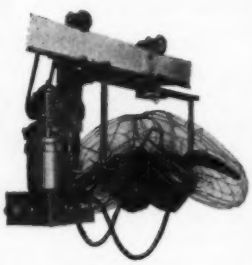


Evaporative Cooling Unit

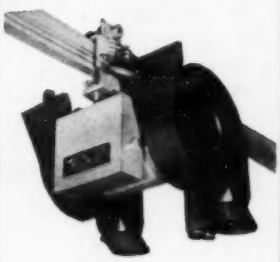


Air Washer

Modulating Interrupter



Ceiling Cleaner



Loom Cleaner

Sling Psychrometer

Blow-Thru Diaphragm Valve

See them at the
TEXTILE SHOW
at
ATLANTIC CITY
May 23-27 • Booths 51-56

Amco Air Conditioning Devices are *quality* textile mill equipment . . . backed by a company with more than 70 years experience in solving textile air treatment problems. You can always rely on Amco to give you dependable advice and an expert installation best suited to your needs.

AMCO
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Air Conditioning Equipment — Textile Specialties
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THE TEXTILE INDUSTRY *Banks on* BIJUR AUTOMATIC LUBRICATION

In hundreds of mills Bijur Automatic Lubrication is paying big dividends in increased production and lower operating costs.

With Bijur, a machine oils itself —while running. You profit from increased production on every machine. There are no stops for oiling and bearing failures are virtually eliminated.

When your machines are Bijur-equipped, even the most inaccessible bearings get the right amount of filtered oil at the right time.

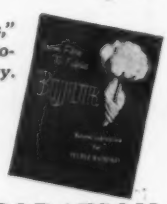
Your operating costs are cut: oil spots on work are eliminated, personnel injuries are avoided, fire risk is reduced, oil consumption is cut greatly by accurate metering, and you enjoy better housekeeping.

Leading textile mills are banking on Bijur Automatic Lubrication. Let us show you how we can help you do the same.

BIJUR AUTOMATIC LUBRICATORS—STANDARD EQUIPMENT IN MANY INDUSTRIES
Textile Machinery • Machine Tools • Business Machines • Printing Machinery • Food Product Machines • Bottling Machines • Packaging Machines • Sheet Metal Machines • Plastic Fabricating Machinery • Glass Products Machinery • Wood-Working Machinery • Industrial Sewing Machines • Special Process Equipment

2365 A

Colorful, new bulletin, "From Fibre to Fabric," shows the practical benefits that Bijur Automatic Lubrication offers to the Textile Industry. Write for your copy.



BIJUR LUBRICATING CORPORATION
Rochelle Park, New Jersey

Pioneers in Automatic Lubrication

SHORTS & REMNANTS

► Last month we told you about our hobby of collecting well mixed metaphors, and presented a few choice specimens. Now several readers have sent in some spare copies from their own collections. This is Congressman McCormack (D., Mass.) speaking: "Nevertheless, whatever is goose for the gander is also goose for someone else."

And it was Senator Capehart (R., Ind.) who once remarked that something was "Crystal clear . . . in a nutshell." It was also a Congressman (whose name, unfortunately, is lost to history) who cleared everything up by saying, "When you boil it right down to brass tacks . . ."

Although political speeches appear to be the richest source of mixed metaphors, this came from a newspaperman: "Crime has within it the cancer which may well be the thin entering wedge leading to the destruction of society if it be not always kept on the shortest possible leash."

Has anyone else a favorite he'd like to pass on?

Any Shows This Year?

"Will you kindly let us know if during the present year there will be held a Textile Show and if so where and during what dates."

WILLIAM E. HALABY
William E. Halaby & Cia. Ltda.
Medellin, Colombia

► This year you are lucky—there will be two shows. The American Textile Machinery Exhibition-International will be held at Atlantic City, N. J., May 23-27; and the Southern Textile Exposition is scheduled for Greenville, S. C., October 3-7.

Wool Is Rugged

We were interested to read this in *The New York Times* dispatch concerning the finding of the bodies of the crew of the "Lady Be Good," the B-24 bomber which crashed in the Libyan Desert during World War II: "One item found with the bodies was a knit khaki sweater, still intact after more than sixteen years of

For further information use Handy Return Card, Page 225

PosiWate

- All three top rolls are ball bearing
- Each roll has two widely spaced ball bearings
- Ball bearings are lint sealed and shielded
- Makes increased weight possible
- Front and back top rolls interchangeable
- Positive weighting and weight distribution
- Same weighting spindle to spindle
- Dead weighting or new cartridge weighting
- Rugged arm pivots on back bar rod
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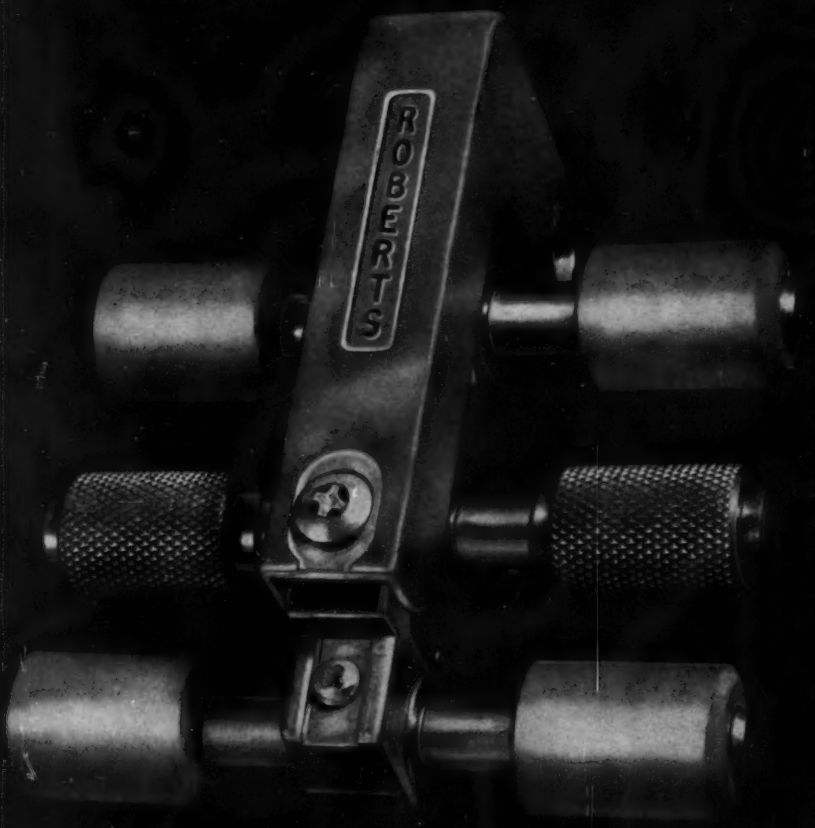
- Cap bars completely eliminated
- Proper top roll alignment
- Eliminates top arm springs and small parts
- Cots revolve together for easy lap removal
- Standard buffing provides .001 accuracy
- Easy cleaning on roll scouring cycles

A 160,000 spindle mill thoroughly tested virtually all modern drafting systems for a six month period with positive results. Roberts Double Apron Drafting with **PosiWate** Top Roll Suspension produced yarn with the fewest ends down, best breaking strength and evenness. Besides, it was the best liked by the spinners themselves.

Roberts Double Apron Drafting is making quality yarn on more than 3½-million spindles. **PosiWate** Top Roll Suspension has been installed on more than 200,000 spindles in the past year and is being installed as a changeover for more than 30 frames every week.



ROBERTS

PosiWate TOP ROLL SUSPENSION

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ATLANTIC CITY, U.S.A. -MAY 23-27, 1960

NEW
Model H Ring Spinning Frame

Designed for impressive new strides in Quality and Low Cost Spinning

1 Production with larger packages, higher speeds, less downtime, less floor space, 16 listed Production features.

2 Preventive Maintenance with more sturdy mechanisms and structures, 22 listed 22 listed Preventive Maintenance features.

3 Safety with lowered frame (no more stepboard) and low voltage control circuits.

NEW
Fiber Blending Opener

to prepare stock blends for the Woolen Card.

Built on Sectional Frame Castings for Flexibility of Application
a) Davis & Furber ruggedness
b) variety of unit arrangements
c) T-slot Arch for adjustment and flexibility of Rolls

Three Cylinder Woolen 84" Card

Includes latest Model L refinements developed and proven during the past 10 years. Includes newest controls for continuous balance and check of Quality and Production.

NEW
Sliver Card

Two Cylinder, 60" width, All Metallic Wire Produces SLIVER FOR HIGH PILE KNITTING.

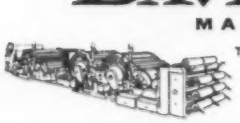
In first installation, comparative mill figures show more than *three times* Production of old Cards replaced on Synthetic Sliver.

NEW
Selectrite Napper

Designed for simplified control and application of energy; Push Button differential variable speed control allows infinite vernier adjustment of energy and registers on tach dials.

D&F Ring Spinning Frame and Three Cylinder Card; Daily Exhibition Operation Schedule; Inquire at D&F exhibit

DAVIS & FURBER
MACHINE COMPANY



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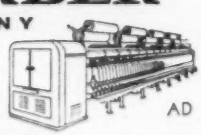
Charlotte, North Carolina



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Member — American Textile Machinery Association

CARDS • SPINNING FRAMES • PREPARATORY MACHINERY • WARP DRESSING MACHINERY • FINISHING MACHINERY MACHINERY MODERNIZATION • ACCESSORIES, SUPPLIES, CARD & NAPPER CLOTHING, GARNET WIRE, TAPES & APRONS SPARE PARTS • TECHNICAL SERVICE & CONSULTATION

(from page 8)

exposure in the dry heat of the desert." We're assuming it was wool, of course—we never saw a sweater made of anything else during the War.

Gauges for Drapers

"In the January issue . . . there is the first article of a series titled 'Gauges in Draper Loom Maintenance.'

"Are reprints of this article available and, if so, can you quote us a price in quantities of fifty?"

F. H. HAMMOND, JR.
Asst. Manager
Bemis Cotton Mill
Bemis, Tenn.

► Others requesting reprints included **B. Lachapelle,** plant mgr., Canadian Celanese Ltd., Coaticook, P. Q.; **A. B. Lee,** weaving overseer, West Point Mfg. Co., Columbus, Ga.; **Martin S. Lindenberg,** pres., Kalco Weaving Corp., New Bedford, Mass.; and **Fred C. Rainville,** gen. mgr., Rojé Mills Co., Inc., West Warwick, R. I. We do not plan to reprint the individual articles in this series. After all of the articles have appeared in TI, they will be reprinted in their entirety in book form, which will be available to readers.

Troubles of a Mill Editor

This description of the woes of the editor of a mill newspaper appeared in *The Commentator,* employee publication of Union Bleachery, Greenville, S. C.:

So You Want to Be an Editor
They find fault with our editor,
The stuff we print is rot;
The paper's about as peppy
As a cemetery lot.
The pages show poor arrangement,
The jokes they say, are stale;
The V.I.P.'s holler,
The office boys wail.
But when the paper's printed—
And the issue is on file,
If somebody missed a copy,
You can hear him yell a mile.

Nickel-Plated Glass Fibers

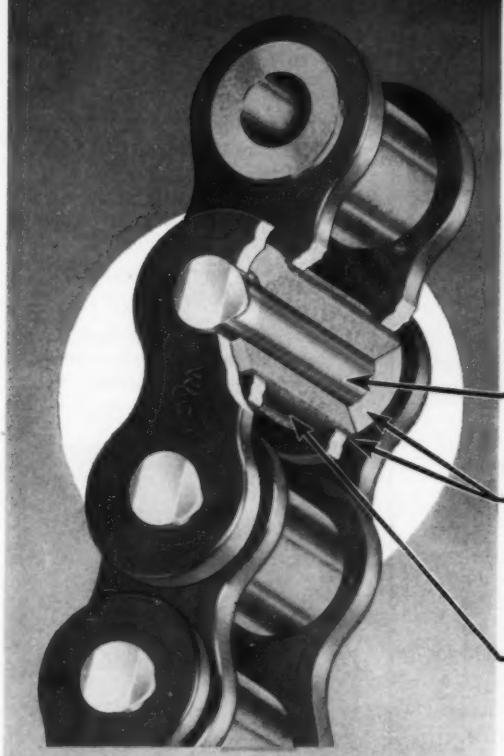
"We note in the January issue of TEXTILE INDUSTRIES a paragraph on page 95 describing a recent development by which nickel can be coated to glass fibers. We would be interested in obtaining any additional information you have on this novel idea."

W. E. SHARPE, JR.
QC Dept., Burlington Inds.
Greensboro, N. C.

► Full details on this were given in *Competition,* Vol. 10, No. 7. That's a magazine published by the de-

WHITNEY MSL* CHAIN PROVIDES COMPLETE

BUILT-IN LUBRICATION AT ALL 3 CRITICAL AREAS



Whitney MSL Chain is lubricated for life by oil-impregnated, sintered steel bushings—an exclusive development of Whitney Research. With this development, Whitney solves a basic chain problem . . . **more damage is caused by faulty chain lubrication than by years of normal service.** Pressure and heat cause built-in lubricant to expand and flow from bushings, providing a constant supply of lubricant to every working part of the chain. When drive stops, bushings re-absorb oil, ensuring a permanent oil supply for the life of the chain. By solving the lubrication problem, and because of other important design advantages, Whitney MSL Chain outlasts conventional chain as much as 5 to 1 in severe operating environments.

Critical Area 1

PIN—Protective film of oil completely lubricates the live bearing area between pin and bushing, minimizing wear by reducing metal-to-metal contact.

Critical Area 2

PLATES—Whitney oil-impregnated sintered steel bushings extend beyond surface of inside plates to: act as lubricated thrust bearings, control clearance, and provide an oil cushion between plates, eliminating plate galling and seizing frequently caused by misalignment of sprockets.

Critical Area 3

SPROCKET ENGAGEMENT—Oil film on exterior surface of Whitney MSL Sintered Steel Bushings provides constant lubrication between sprocket teeth and chain. Whitney MSL Chain requires no rollers, as the tough oil film on the bushing surface provides smooth sprocket engagement, cushions impact and reduces drive wear.

Whitney oil-impregnated bushings—developed through continuous Whitney Research—are produced exclusively by Whitney to assure MSL Chain users of highest quality and reliability.

Inherent material characteristics of Whitney Sintered Steel Bushings, plus bushing configuration that provides greater contact area between bushings and links, permit high interference fit, which pre-loads links and gives maximum fatigue resistance.

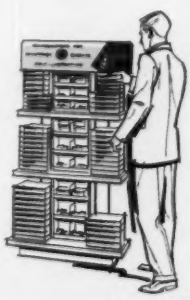
Controlled clearance between plates promotes self-cleaning action.

WHITNEY MSL CHAINS MEET ASA STANDARDS

All essential dimensions of Whitney Standard and Extended Pitch MSL Chain conform fully to ASA Standards, making it completely interchangeable with any similar pitch ASA standard chain, simplifying specification for new equipment, or as a replacement for existing drives.

Whitney MSL Chain is carried in stock by Distributors in all parts of the United States, for prompt delivery.

* **Maximum Service Life**



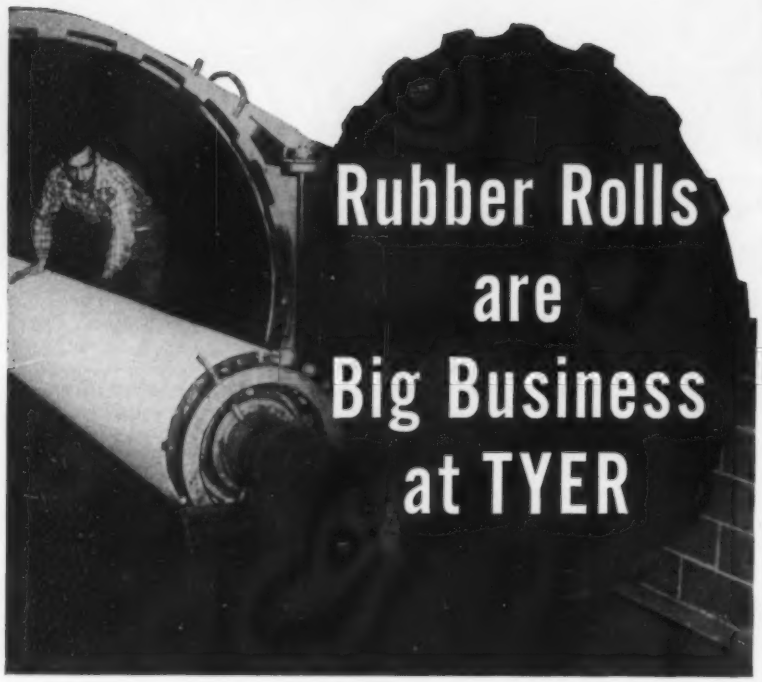
MSL Chain is carried IN STOCK by your Whitney Distributor. Ask him to show you how and why Whitney MSL Chain gives you more chain drive value per dollar.

THE WHITNEY CHAIN COMPANY

a subsidiary of FOOTE BROS. GEAR AND MACHINE CORPORATION

4591 S. Western Blvd., Chicago 9, Ill.

POWER TRANSMISSION DRIVES



Tyer's expanded facilities for covering rubber rolls include the huge new vulcanizer shown above. 37 feet long, it has an inside diameter of 7 feet. Tyer grinders now accommodate rolls up to 60 inches in diameter and 366 inch face.

Tyer roll fabrication ranges in scope from tiny 1-ounce envelope rolls to giant suction press rolls used by paper mills. Hundreds of different compounds have been developed for our customers to take care of the functions to be performed by each individual roll.

In more than 30 years of roll manufacturing, Tyer has found the answer to many difficult rubber roll problems. Chances are, we can solve *your* problems, too. Write today for free brochure or a visit from a Tyer sales engineer.

TYER Rubber Company

ANDOVER, MASSACHUSETTS, U. S. A.

SHORTS & REMNANTS

(from page 10)

velopers of the process—The Commonwealth Engineering Co. of Ohio, 1771 Springfield St., Dayton 3, O.

Flexible Pattern Drum

"On page 161 of the May 1959 issue of TEXTILE INDUSTRIES you have an article on a flexible pattern drum. This article is very interesting (it is used with SCP and SCOP machines) . . . would like to purchase one . . . "

JUAN M. DADA
Mgr., Dada Hnos. Ltda.
San Pedro de Montes de Oca
Costa Rica

► That's the Honeycomb Quick Change Pattern Drum made by Southern Mill Equipment Corp., Charlotte, N. C.

Cool Cat

The caption for this photo is not "I can tell a cat even when I'm blindfolded," or "Oh, George! You've bought me a seeing-eye cat!" It just

says, "You can't tell the difference when tricot finished in 'Fanta Soft' is compared with the soft, velvety texture of a kitten's fur." And we must admit, this cool cat has it real soft.

Capstan Clamps for Testers

An official at N. V. Stoomweverijen Besouw, Goirle, Holland, read H. A. Mereness' article, "Get Better Breaks for Smooth, Heavy Fabrics," in our December, 1959, issue, and wrote asking the following questions: Is the use of the capstan clamps now accepted as standard? Who makes these clamps? We referred the letter to Mr. Mereness, who answered:

"The use of the capstan clamps . . .

Eastman now offers textile finishers 3 basic types of polyethylene

New EPOLENE resins enable textile chemists to formulate broader range of softeners

The wide range of properties now available in Eastman's Epolene series provides greater flexibility in formulating polyethylene emulsions for softening "wash and wear" cottons and synthetics, and for textile lubricants and sizes.

Permanent, low in color, non-chlorine retentive and easy to prepare, emulsions based on Epolene polyethylene give you a practical and economical method for improving the hand, abrasion resistance and tear resistance of "wash and wear" treated fabrics.

With Epolene, you can prepare any kind of emulsion system, cationic, anionic or non-ionic, with solids contents of up to 40%.

Choose from three different low-molecular-weight resins to obtain the right emulsion properties and finishing characteristics for your equipment and service.

Epolene E is the highest-molecular-weight resin of the three. It produces stable, low-color emulsion systems of superior quality for use in softening cottons or synthetics, or as a lubricant to reduce needle-cutting and increase sewability. Like other Epolene resins, it needs no curing, lasts through repeated launderings and resists dirt pick-up and redeposition.

Epolene LVE, a new resin type, has a lower melt viscosity than has Epolene E, thus offering somewhat better handling characteristics. Epolene LVE is softer than other resins in the series. The stability of its emulsions in the presence of resin catalysts is outstanding, especially at the low end of the pH scale, as indicated by its relatively high HLB factor.

Epolene HDE is the first high-density, emulsifiable low-molecular-weight polyethylene on the market. Because it is much harder, it improves significantly the abrasion resistance and tear resistance in cotton and cotton blends. Its stability and permanence are excellent. It, too, offers easier handling characteristics during emulsion preparation because of its low melt viscosity.

If you are formulating polyethylene softeners and would like to produce stable, economical emulsion systems of superior all-'round characteristics, look to Epolene from Eastman. Let us introduce you, also, to new time-saving and cost-cutting emulsifying techniques developed at our textile laboratories. For more information on the formulating and performance advantages of these superior polyethylene resins or for specific formulating assistance, write your nearest Eastman office. We invite your inquiry.

Property	Epolene E	Epolene LVE	Epolene HDE
Molecular Weight	2500	1500	1500
Density	0.938	0.939	0.956
Ring and Ball Softening Point, °C. (ASTM D-36-26)	104-108	104-105	110-111
Penetration Hardness (100 g./5 sec./77°F., tenths of mm.)	2	5	1
Color (liquid), Gardner scale, max.	2	2	2
Brookfield Viscosity (cps. @ 120°C.)	1500	400	455

Epolene

EASTMAN low-molecular-weight polyethylene resins

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; Atlanta; Chicago; Cincinnati; Cleveland; Detroit; Framingham, Massachusetts; Greensboro, North Carolina; Houston; New York City; Philadelphia; St. Louis. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

SHORTS & REMNANTS

(from page 12)

has not been accepted as a standard. The A.S.T.M. . . allows only clamps with flat jaws . . . but allows capstan type clamps to be used for yarns, and therefore we can anticipate that when a sufficient number . . . are actually in use that the A.S.T.M. will approve their use.

"These jaws may be purchased from the Thwing-Albert Instrument Co. . . who manufacture them under U.S. Patent 2,850,895."

TI for Report Writers

"I have . . . textile engineering students who are interested in subscribing to your publication. This is rather vital to them in order that they might have some good bibliographical sources of information for their course in 'Technical Report Writing.' . . they are most anxious to supplement their sources of information with your excellent paper."

LOUIS PACHECO, JR.
Assoc. Prof.
New Bedford Inst. of Tech.
New Bedford, Mass.

For Better Weaving

Here is another book which you can obtain with a subscription to TEXTILE INDUSTRIES:

"101 Ways to Weave Better Cloth" contains 64 pages of time- , labor- , and material-saving hints from the pages of our "How Others Manage" department. It deals with both Draper and C & K looms, and covers the weaving of all types of fibers and fabrics. As a matter of fact, it has considerably more than 101 short articles, but we thought that "101" sounded good in the title!

Liked TI Story

"Your December, 1959, issue of TEXTILE INDUSTRIES . . . special write-up and pictures of our Trenton Cotton Mills, Inc., Abernethy Division, Statesville, N. C., . . . was very nice . . . would appreciate . . . six extra copies . . ."

CALDWELL RAGAN
Exec. v-p
Trenton Cotton Mills, Inc.
Gastonia, N. C.

Miscellaneous Wants

More information on items mentioned in J. B. Goldberg's "Textile Research Achievements in 1959"—**John T. Grant,** bus. mgr., Formex Co. Div. of F. C. Huyck & Sons, Greeneville, Tenn.; **Paul Lavitt,** supt., Knit-Sox Knitting Mills, Inc., Hickory, N. C.; **W. B. Rogers, Jr.,** Amerotron Co., Williamston, S. C.; **Albert G. Hoyle,** Ludlow Mfg. & Sales Co., Needham Heights, Mass.; **M. G. Cove,** Chemstrand Ltd., London, England; **Morton Hacker,** sp. prod. res., Johnson & Johnson, New Brunswick, N. J.; **S. Sigel,** M.K.M. Knitting Mills, Inc., Manchester, N. H.; **J. L. Strickland,** C. H. Masland & Sons, Carlisle, Pa. And F. H. Hammersen AG, Osnabruck, Germany, wanted to know who makes the mirrored cloth inspection device described in Mr. Goldberg's column for last August. Well, it's made by Erhardt & Leimer oHG, of Augsburg, Germany. So now TI tells German mills about German equipment.

Extra copy of November, 1959, issue—**John L. Morgan, Jr.,** area v-p, Pacific Mills, Halifax, Va.

Reprint of "Try This Rapid Test for Honeydew" (TI for Dec., 1953)—**Fred G. Sutherland,** methods engr., White Horse Mill, Greenville, S. C.

What do the terms "liquefon" and "dextrinizing value" mean, as used in the article, "How Does Your Desizing Measure Up?" (TI for May, 1958) — Comin SA, Montevideo, Uruguay. We referred this to Dr. F. J. DiCarlo, co-author of the article, who informed us that the terms were a little too complicated for a simple definition; suggested that the inquirer refer to the previous work listed with his article.

Reprints of nomogram, "How Many Fibers Per Yarn Cross Section"—**W. R. Owens,** yarn dev. head, McCormick Mill, McCormick, S. C.

Copies of chart, "Properties and Uses of the Man-Made Fibers"—**Robert C. Hutson,** Samson Cordage Works, Boston, Mass.; **David C. Ling,** v-p, Ro-Search, Inc., Waynesville, N. C. ("Please accept our thanks for

Continued on page 22

Stop worrying about STATIC!
Simco engineers have developed an electronic static eliminator that is unconditionally guaranteed to end all textile static problems. Now, the assurance of static-free warps or slivers is yours! When Simco "Midgets" are used on creels, warpers, cards, finishing machines, etc., you get the advantage of the most effective neutralizers available . . . yet you enjoy lowest possible cost! Why not equip your machinery now? Simco is America's largest manufacturer specializing in anti-static equipment and sprays, anti-static cleaning devices, and static measuring meters.
the SIMCO company
920 Walnut Street, Lansdale, Pa.

HARSHAW

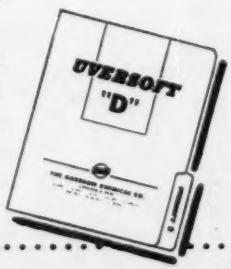
UVERSOFT "D"

imparts soft hand with little reduction in moisture absorbency

• UVERSOFT "D" is a cationic surface active agent which produces a full, soft hand with little, if any, reduction in moisture absorbency of the TREATED material. It can be exhausted from a long bath, and has an excellent retention in an aqueous system. UVERSOFT "D" provides a maximum economy in application and use.

UVERSOFT "D" is an outstanding anti-static agent. It should be considered for situations where the accompanying softening action is not objectionable.

Send for folder containing complete technical information.



THE HARSHAW CHEMICAL CO.
1945 EAST 97TH STREET • CLEVELAND 6, OHIO

HARSHAW

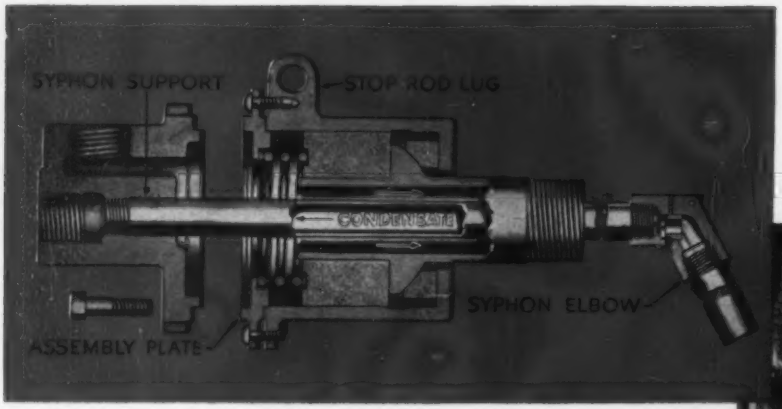
Send Me Technical Bulletin on Uversoft "D"

My Name_____

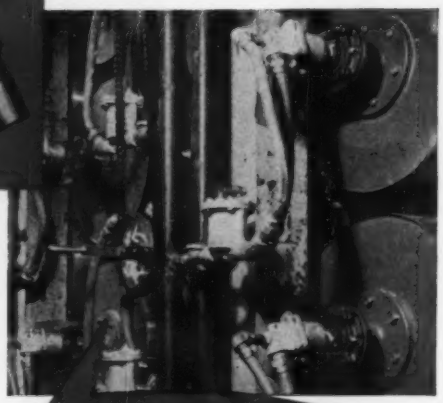
Company Name_____

Street Address_____

City_____ Zone____ State_____



TYPE S-B2P Johnson Joint with Syphon Elbow. This is a completely self-supporting unit; the lug shown on body is for simple stop rod to keep joints from turning. Installation view shows these joints installed on dry cans.



These are the ones to use... { For 23" dia. Dry Cans and 30" dia. Slasher Cylinders

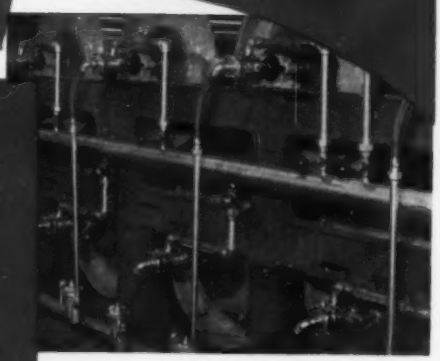
JOHNSON
Rotary Pressure
JOINTS
with JOHNSON
SYPHON ELBOWS

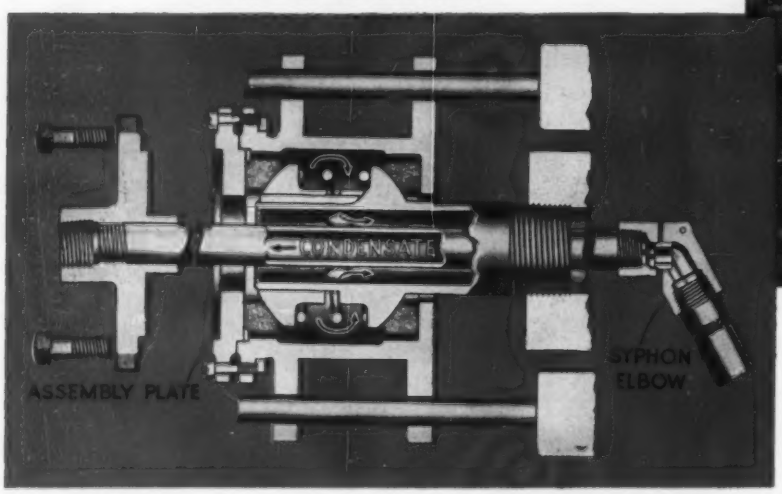
These two types of Johnson Joints have proved particularly suited for service on the newer 23" diameter Dry Cans and 30" diameter Slasher Cylinders. The Type S is completely self-supporting; the Type LJ is rod-supported from bosses provided by machinery manufacturers. Both types are completely packless, need no lubrication or adjustment.

Pictured with each joint is the Johnson Syphon Elbow, successor to the unwieldy curved syphon pipe. It hinges to pass right through the joint, seats of its own weight when in position, permits the use of two simple straight pipes for the syphon line. Special assembly plate is provided on joints so the head and syphon pipe can be removed without disassembling the joint.

Here's our offer—We will gladly furnish a pair of Johnson Joints for 90-day trial in your own mill, without cost or obligation to you. There are Johnson Joints for all operating conditions.

Write for full information





TYPE L-JSP Johnson Joint with Syphon Elbow. Has lugs on body for support rods, which carry all weight of body and connections, permit rotating assembly to "float" freely inside. Steam inlet is in side of body as shown in installation view of joints on slasher cylinders.

THE JOHNSON CORPORATION
815 Wood Street, Three Rivers, Michigan
Rotary Pressure Joints • Direct Operated Solenoid Valves

Staley's presents:

Weavers Through The Ages

Mexico . . . 16th Century

Lovely, elaborately decorated cotton blankets were part of the tribute demanded by the conqueror, Montezuma . . . Emperor of the Aztecs.

Early in the 16th century, fabled Montezuma, Emperor of the Aztecs, waged a war of conquest which greatly enlarged his empire.

Among other conquered peoples where the Mayas, highly skilled craftsmen. From them, Montezuma demanded two thousand decorated cotton blankets as part of the tribute to be paid to him each year.

From these early, meticulous handweavers to the latest super-speed looms that weave thousands of yards of fabrics a day—the textile industry has always considered quality as a primary obligation of their art.

That's why textile men the country over rely on Staley and Staley's products. For they know by experience—the Staley name spells *quality textiles*. That's because Staley's extensive research, unsurpassed technical service, and complete line of starches, gums and dextrins—all combine to supply the textile industry with *quality at its very best.*

A. E. Staley Mfg. Co., Decatur, Illinois

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WORKS FOR TEXTILE MEN AT EVERY STAGE

WETTING AGENTS

Nopco 1186-A	A sulfated ester with outstanding wetting and rewetting properties for cotton fabrics
Nopco 1525	A 100% active nonionic ethylene oxide condensate with excellent acid stability
Nopco 2272-R	Low foaming sulfated ester. Performs as wetting and rewetting agent, penetrant, and dye leveler

SYNTHETIC FIBER LUBRICANTS

Nopcostat® Series	AS-40, LV-40, 2152-P, 2152-X. A family of highly antistatic lubricants for application to synthetic fibers and their blends. The Nopcostat Series provides the user with a range of fiber-to-metal and fiber-to-fiber frictional characteristics
Nopcotex® A	Non-soiling fiber lubricant recommended for processing natural and synthetic carpet staple
Nopcotex B	Processing aid for Corvel staple; anti-graphite lubricant for lace yarns

CONING OILS

Konrite® A	All-purpose antistatic coning oil. Medium viscosity with built-in detergency
Nopcone® AR	Low-viscosity antistatic lubricant specially designed for bulk yarns and low denier synthetic filament yarns
Nopcone LV	Extra-low-viscosity lubricant designed for bulk and stretch yarns, polyamide, polyester and polyacrylic filament yarns

WARP SIZING PRODUCTS

Nopcosize® N	Modified polyacrylic acid for sizing of filament nylon
Nopcosize D	Water-soluble polymeric size developed for slashing Dacron* filament yarns
Nopco 1111	Plasticizer and lubricant for rayon and acetate sizes. Also used extensively in the soaking of rayon crepe yarns
Nopco 1440	Warp size bath additive that acts as a plasticizer, lubricant and penetrant for rayon and acetate sizes
Nopcolube® 55	Lubricant added to polyacrylic acid size bath for Nylon to eliminate topwaxing

*Trademark of E. I. du Pont de Nemours & Co., Inc.

WOOL AND WORSTED OILS

Nopco FUA®	Self-scouring all fatty wool oil
Nopcostat 56-C	Antistatic oil recommended for use on all woolens. Applied in range of 3-5% owf
Nopco 100	Blended fatty lubricant for wool and synthetic fibers
Worsted Oil 12®	Outstanding antistatic worsted lubricant. Provides optimum fiber-to-metal frictional characteristics and inter-fiber cohesion

DETERGENTS

Hyonic® PE	Series of polyoxyethylene condensates offering a range of oil and water solubility with numerous applications in the textile industry
Syntergent® 28-B	Nonionic raw wool scouring detergent
Syntergent 130-W	Low-temperature raw wool scouring detergent
Nopco 1479-D	Designed for the fulling and scouring of wool and worsted fabrics. High soda ash stability
Nopco 1658-C	An inexpensive detergent designed to replace soap for fulling and scouring on a pound-for-pound basis
Nopco 9092	Fulling compound with exceptional detergency. Will tolerate soda ash solutions as high as 14 ounces per gallon

DYEING AND FINISHING

Nopcotex	Trademark for Nopco's line of softeners. Products available for all phases of fabric finishing
Polymul® Series	Series of polyethylene emulsions used as pure finishes and softeners in resin formulations
Nopco 1425-B	Dye leveling and stripping agent recommended for acid, premetalized and chrome dyestuffs
Nopcosulf® Series	A group of sulfated vegetable, animal and marine oils which vary in activity and degree of sulfation. Used in dyeing, bleaching and finishing of cotton and synthetic fibers

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CENTRIFUGAL PUMP APPLICATION MANUAL

by BUFFALO PUMPS ENGINEERS

Here in concise useable form are complete facts on centrifugal pumps and their application. Quick, ready reference is provided by subject sections tabulated at the front. A wealth of illustrations and diagrams amplifies the subject matter.

The purpose of this Engineers' Handbook is to cover the various uses of Centrifugal Pumps, the different types designed to meet specific needs, their operation and the solution of pump problems. Also included are general data and Standards of the Hydraulic Institute.

The pocket-size Manual contains 277 pages of fact-filled information of vital importance to every user of pumps. It will prove an invaluable tool and reference to every Pump Engineer.

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- Single- and multi-stage pumps for general and special industrial service.
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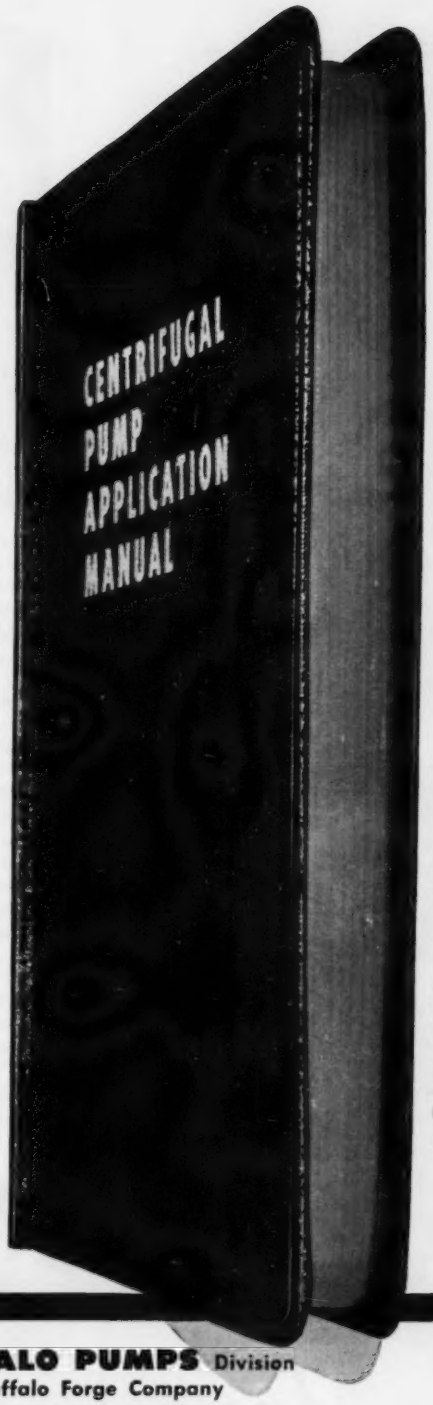
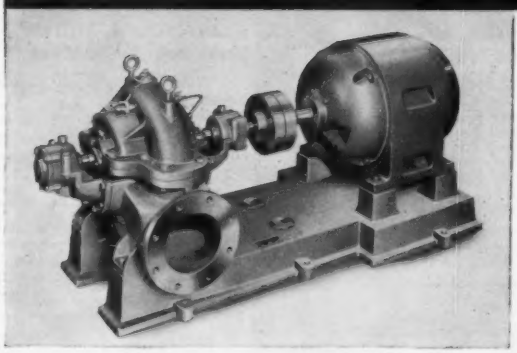
- Special pumps for moving paper stocks, corrosive and high temperature liquids and slurries.

You can rely on your nearby Buffalo Representative for expert help. Remember, he helped write the "book".



A "MUST" FOR EVERY PUMP ENGINEER



BUFFALO PUMPS Division
Buffalo Forge Company
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☐ Please send **Centrifugal Pump Application Manual** now — bill me later.
☐ Enclosed is $5. Please send the **Manual** Postpaid.

Name_____ Title_____
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Which of these 5 products and services can you use... from

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FOOD MACHINERY AND CHEMICAL CORPORATION

FOOD MACHINERY AND CHEMICAL CORPORATION
Becco Chemical Division
STATION B, BUFFALO, NEW YORK

And Arnel, too, for that matter. As well as rayon-acetate, and other synthetics.

What's made for them? Becco's Peracetic Acid, of course. It's perfect for bleaching many synthetics, since you get good clear whites with practically no reversion during heat-setting operations. You'll find Becco Peracetic Acid minimizes reversion in storage, too.

We say "many" synthetics, because we can't list them all here. If you're having trouble bleaching any particular one, why not write us? We'll tell you what we've done to date, and what we might be able to work out for you.

If you're finishing nylon, start off by getting your free copy of Becco Bulletin No. 60—"Successful Bleaching of Types 670 and 200 Nylon with Peracetic Acid."

Use the coupon below.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo 7, New York

Dept. TI-L

Gentlemen:
Please send me a copy of your free Bulletin No. 60—"Successful Bleaching of Types 670 and 200 Nylon with Peracetic Acid."

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FIRM_____

ADDRESS_____

CITY_____

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Problems in handling Hydrogen Peroxide

Becco's Four-Fold Engineering Service Program—offered free—includes:

1. Comprehensive survey of your facilities.
2. Specific proposal with recommendation of proved equipment and where it is obtainable.
3. Installation supervision by Becco.
4. Periodic inspection and permanent service.

Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. TI-B

Gentlemen:
Please tell me more about your Four-Fold Engineering Service.

NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE_____ STATE_____

TECHNICAL BULLETINS

We got 'em—
You can have 'em!
They're FREE!

Years of experience in textile processing have produced a library of technical information which is available in individual bulletins, free on request. Use the coupon below to let us know which you'd like to receive.

No. 29 – Hydrogen Peroxide Dry-In Process for Bleaching Wool.

No. 35 – Modification of Wool with Peroxygen Compounds.

No. 43 – Treatment of Cellulose and Cellulose Derivatives with Peroxygen Compounds.

No. 52 – Bleaching with Some Peroxygen Chemicals.

No. 53 – Fluorescent Agents in Peroxide Bleaching of Knit Goods.

No. 60 – Successful Bleaching of Types 670 and 200 Nylon With Peracetic Acid.

No. 61 – Knit Goods Bleaching Range.

No. 71 – Continuous Bleaching of Cottons with Silicate-Free Peroxide Solutions.

No. 75 – Oxidation of Dyes On Cottons and Synthetics with Peroxygen Chemicals.

No. 88 – Progress in the Art of Bleaching.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. TI-I

Gentlemen:

Please send me a copy of each of the following bulletins:

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NAME_____

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ADDRESS_____

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ZONE____ STATE_____

What's a PEROXYGEN?

Fact is, "peroxygen" is a word that Becco uses to indicate that we can tie oxygen onto just about anything.

How come? Well, years of experience in producing Hydrogen Peroxide has produced an affinity between Becco and oxygen — an affinity we have capitalized on to give you compounds that will provide a ready source of oxygen — wherever, however and whenever you need it.

We have a good number of such compounds on the shelves. Quite a few others are in development. Still others are merely in our minds, but we can begin drawing them out if you're interested.

We hope you are interested. But we'll never know—unless you fill in the coupon below and mail it to us. Why not?

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. TI-D

Gentlemen:

Send me more information about Becco Peroxygen Chemicals.

NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____

Solve Dye Problems with BECCO Silicate-Free Bleaching

"We dyed half a million yards this week... with no rejects!"

So reports a new user of Becco Silicate-Free Bleaching Process,* who previously suffered up to 25% rejects.

When complex silicates of calcium and magnesium formed scale on equipment and left resistant residues in the cloth, a Becco Sales Engineer studied the situation, and recommended Silicate-Free Hydrogen Peroxide bleaching solutions which eliminated the problem.

Silicate-Free bleaching won't answer **every** textile bleaching problem. But chances are one Becco process or another **will.** If you need help, use the coupon below to request a Sales Engineer's call. Also, ask for your free copy of Bulletin No. 71, "Continuous Bleaching of Cottons with Silicate-Free Peroxide Solutions".

*U.S. Patents 2,740,689 and 2,820,690

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Gentlemen: **Dept. TI-A**

☐ Please send a free copy of Becco Bulletin No. 71.

☐ Please have a Sales Engineer call.

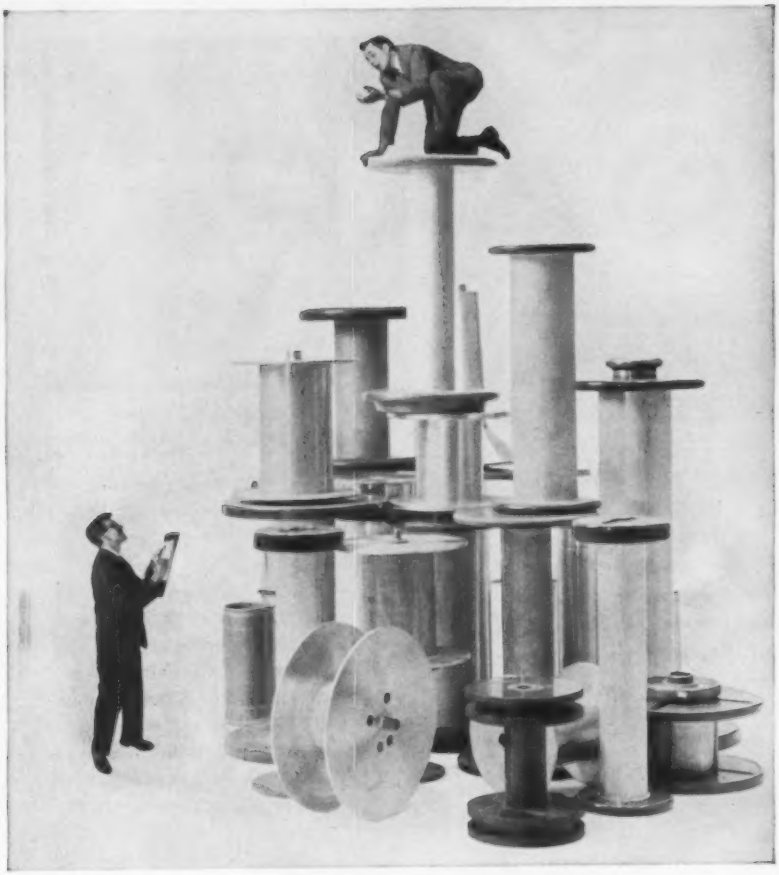
NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____



GOT A BOBBIN PROBLEM...?

With higher speeds? bigger packages? longer life?
moisture? drive accuracy? balance? finishes?
synthetic yarns? pressures? other problems?

No one understands your need for bobbin design that is exactly right for your yarns, and bobbin performance that is 100% dependable, as intimately as we at the Lestershire Division of National. That's why we gear all of our manufacturing skills and services to your bobbin problem . . . not just to the manufacture of one convenient "standard" line.

Our factory representatives take pains to study your processes. Our designers work with infinite precision, and test and re-test to assure maximum bobbin concentricity and service life. Every development in yarns is followed to keep abreast of changing bobbin requirements. We know the textile field is too competitive for you to risk the cost of poor bobbin performance, or inferior quality.

Finally, we price all Lestershire Bobbins and Spools based on built-in quality giving top performance, long life, and operating economy.

Why not toss that bobbin problem at us . . . *today?* You can get in touch with us through any of the addresses below. Or contact your nearest National sales office. Dept. W-4.

LESTERSHIRE SPOOL DIVISION
NATIONAL VULCANIZED FIBRE CO.
WILMINGTON 99, DEL. • *Plant:* **140 Baldwin St., Johnsen City, N. Y.** • *In the south:* **Odell Mill Supply Co., Greensboro, N. C. • Greenville Textile Supply Co., Greenville, S. C.**

For further information use Handy Return Card, Page 225

SHORTS & REMNANTS

(from page 14)

this very comprehensive coverage of an important subject."); **S. Kaplan,** head of lab, S. Stroock & Co., Inc., Newburgh, N. Y.; and **Sidney Pfeffer,** Lionel Lingerie Sales, Inc., NYC.

Details on American Textile Machinery Exhibition-International—**G. A. Fahlberg,** ch. engr., Timberline Fabrics Co., Denver, Colo.; and **Ralph V. Miller, Jr.,** PA, David Clark Co., Worcester, Mass. Tickets and

hotel reservation forms can be obtained from TI. Write:

The Editors, TEXTILE INDUSTRIES
806 Peachtree St., N. E.
Atlanta 8, Georgia

or use the handy postage-free card on page 225.

More information on split top card flats and sandpaper carding (TI for Dec., 1959)—**J. Mikiaszewski,** mgr., Santee River Wool Combing, Jamestown, S. C.; **W. S. Libbey,** pres., W. S. Libbey Co., Lewiston, Me.; and **T. D. Smith, Jr.,** overseer carding and spinning, Kingstree Mfg. Co., Kingstree, S. C.

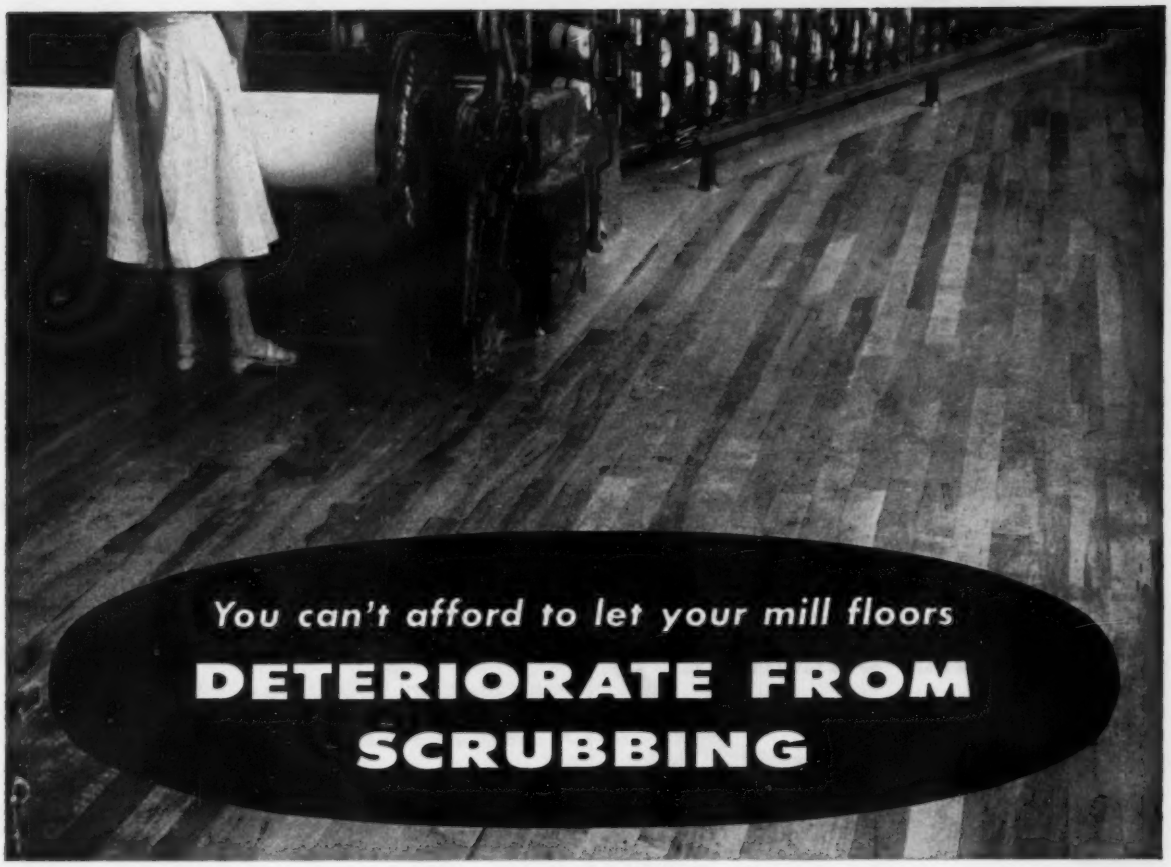
Who makes bonded nylon thread?—**Morris L. Martz,** Supreme Thread Co., NYC.

Information on "Quarpel" water-repellent finish (TI for Feb., 1960)—**Murray L. Rose,** Approved Flameproofing & Siliconizing Co., Miami, Fla.

Would like to exchange visits with industrial engineers in American dyeing and printing plants—**R. A. Cotic,** mgr. IE dept., Cofia SA, Munro, Argentina.

Who makes rubber bands for sliver-can identification use?—**G. C. Martin,** gen. mgr., textile dept., The Ensign-Bickford Co., Simsbury, Conn.

► And next month comes our special preview of the American Textile Machinery Exhibition-International, and we'll see you in Atlantic City May 23-27.



Dozens of textile mill maintenance men—acting on the advice of Atlanta-based Minnesota Paint salesmen—have reduced floor care costs by following these eight basic rules:

1. Always clean floors thoroughly before sealing. Floors must be absolutely clean and dry before sealing or they will look dark or soiled until they are completely re-sanded. Scrape off accumulated floor deposits and remove grease spots with mineral spirits.

2. Use only top quality sealers and finishes. The secret of a good sealer is the solids it contains. The more tung oil a sealer contains the deeper it penetrates and the better the foundation for the finish coat. Tung oil makes wood fibers tough, elastic, and waterproof. Special synthetic resins are added for hardness, durability, to speed drying and to increase the gloss.

Minnesota Paints' Floor Finish chemists have developed precise combinations of tung oil and resins to fit your most exacting requirements. Minnesota Floor Finishes are widely used throughout the textile industry, because Minnesota Paints has made a special effort to study the floor finish problems and needs of textile mills.

3. Use a heavy bodied finish when time permits. Solids are the life of sealers and finishes. The more solids in a sealer, the deeper it penetrates and the better a foundation it makes. The more solids (tung oil and phenolic resins) a finish contains, the longer it will last.

However, the more solids a finish or sealer contains, the longer the drying time. Beware of fast drying floor sealers and finishes. They are probably low in solids and will not wear well.

Minnesota Minnfloor is an excellent, heavy-bodied—but slightly slower drying—heavy duty floor finish.

4. Allow plenty of drying time. It doesn't pay to rush the drying time of a good finish. Minnesota Minnfloor Finish and Heavy Duty Floor Finish, for example, under ordinary conditions dry in from six hours to overnight. However, if surface is to be exposed to heavy traffic or skidding machinery, floor should be dried for several days to prevent skinning.

5. Don't scrub or wet-mop too often. Remember, continuous scouring and scrubbing deteriorates floors. A freshly sanded or stripped floor sealed with Minnesota Penetrating Floor Sealer won't require much scrubbing. But when it does need it, the tough, deep sealer will prevent damage.

6. Dry-mop frequently. The best way to keep a floor bright and attractive is to buff and clean it frequently with a dry, cotton mop. Mops pick up fine dirt and dust and buff at the same time, while brooms and fibre brushes leave much of it behind.

7. Don't sand floors too frequently. The average maple floor cannot be sanded more than four times without cutting down to tongue and groove. Often a floor can be completely refinished, when necessary, without sanding by using Minnesota Floor Stripper. Floor Stripper is a non-inflammable product which softens floor finishes for removal by scraping and buffing. It works faster than sanding, does not rot floors or cut away wood surface, and need not be washed after scraping and buffing.

8. Don't use mop oil. More than enough oil usually drips from machines in textile mills to control dust when dry mopping. Floors are sanded to remove oil and sealed to keep it out, so why apply it intentionally? Oil darkens the finish and causes slick floors.

Minnesota Paints' staff of textile mill paint salesmen in Atlanta has had years of experience with your particular kind of floor finishing problems. Call or write for a service demonstration. No obligation. *Call* PLaza 3-5151, Atlanta, Georgia; or *Write* 1314 Murphy Ave., S.W., Atlanta. Our staff of floor experts will show you how to reduce floor maintenance costs while making your floors last longer and look nicer.

Minnesota PAINTS

MINNESOTA PAINTS, INC.

Minneapolis 15, Minnesota

Plants: Atlanta • Minneapolis • Ft. Wayne • Dallas

LIQUID SULFUR DIOXIDE

TENNESSEE CORPORATION

For Effective Removal of RESIDUAL CHLORINE

SO_2 accomplishes the following — Acidifies alkaline hypochlorite making it easier to wash out. Reduces chlorine to the harmless valence minus one (Cl^{-1})! Leaves fabric acid free.

Tennessee's Liquid Sulfur Dioxide is of highest purity and is very effective as a reducing, bleaching and neutralizing agent, preservative and pH control.

Let us consult with you on the possibilities of Tennessee's Liquid Sulfur Dioxide in your processing.

Available in: Cylinders, Ton Drums, Tank Trucks and Tank Cars

LIQUID SULFUR DIOXIDE SO_2

TENNESSEE CORPORATION

615-629 GRANT BUILDING ATLANTA 3, GEORGIA

WELCOME TO BOOTH 415, "TEXTILE INDUSTRIES" BOOTH AT ATLANTIC CITY

Stop in and visit with us while you're at the American Textile Machinery Exhibition in Atlantic City, May 23-27.

A cordial welcome awaits you. We would like to get to personally know as many of the readers of TEXTILE INDUSTRIES as possible. Needless to say, advertisers will also be welcomed with open arms.

Make booth 415 your place to meet friends and get off your feet for a while.

Charts will be provided to help you find the displays you particularly want to see.

DON'T FORGET . . .

The May issue of TEXTILE INDUSTRIES will feature a preview of the show. Use it to better plan your time at the show. It will contain brief write-ups of the equipment to be shown by various manufacturers. Additional copies available at the show.

TEXTILE INDUSTRIES

806 PEACHTREE ST. ATLANTA, GA.

TR 4-4462

Weaving Spun Synthetics? or Blends?

Seyco Film E

is what you've been looking for

For:

Trouble-free weaving
Ease of desizing
Compatibility with other ingredients
First quality cloth
Reasonable cost

Ask for our bulletin on SEYCO Film E

or

telephone collect for an in-plant demonstration.

Warp Sizing: *Softeners, Binders, Penetrants, Ty-In Penetrants, Shuttle Dressing, Waxes.*

Wet Processing Chemicals and Auxiliaries: *Dye Assistants, Penetrants, Rewetting Agents, Sanforized Fabric Oils, Detergents, Scouring Agents, Softeners.*

Niagara Twist-Setter: *Yarn Conditioning Penetrants.*

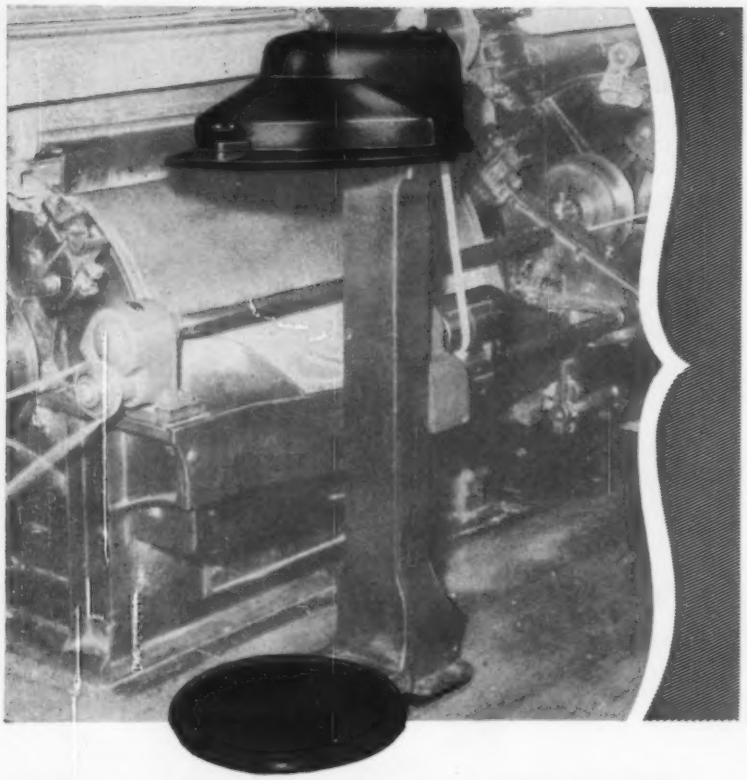
Seyco Warp Lubricator.

Headquarters for textile chemicals

SEYDEL-WOOLLEY & CO.

748 RICE STREET, ATLANTA, GEORGIA

SEYCO



SOUTHERN STATES' NEW COILER HEAD AND BASE MAKE CONVERSION TO LARGER CANS SELF-PAYING

For mills seeking a low initial cost for conversion to larger cans, Southern States' new conversion unit is the answer. It consists of: 1) the identical, vastly improved ball bearing head used on the new complete coiler; 2) an adapter spacer and upright shaft for increased coiler height necessary to accommodate 36" or 42" cans; and 3) a new, standard-type base assembly with a conventional gear system for driving the can table. All necessary components are furnished in kit form for quick installation, *using your existing stands.*

Southern States' Conversion Units are designed for use on any make cotton card and for accommodating cans of larger diameter.

Case histories of mills prove conclusively that Southern States' conversions are so economical they soon pay for themselves. For a small initial investment, you enjoy all the advantages of more efficient handling; lower operating costs; improved quality; simplified oiling; ease of maintenance; smaller parts inventory; and years of satisfactory service.

Get full facts from your Southern States representative or write direct to us for Technical Bulletin No. 205.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

PERSONAL NOTES

William C. Summersby, vice-president and general manager of The Springs Cotton Mills, has retired. **John L. Hallett** has been named to succeed Mr. Summersby as general manager. * * * **V. A. Ballard,** formerly manager of The Springs Cotton Mills' Gayle plant, has been named manager of the Lancaster, S. C., mill, succeeding **R. H. King** who recently retired after 25 years with the company.

E. F. Willer and **Joe C. Ridenhour** have been elected vice-presidents of Cannon Mills Co.

F. Fuller Ripley, formerly treasurer, has been elected to the newly created position of vice-president in charge of development of Troy (N. H.) Blanket Mills. **George K. Ripley,** president, has assumed the treasurship duties also.

J. E. Jeter has been elected a vice-president of Standard Knitting Mills. Mr. Jeter, who has been with the firm since 1940, will be in charge of sales and advertising of the Health-knit division.

John P. Kendall has been elected a director of the Kendall Company succeeding his late father, Henry P. Kendall. Mr. Kendall is associated with the fiber products division of the company.

Henry Singe has been named vice-president in charge of manufacturing for Hudson Hosiery Co., Shelby, N. C., succeeding **Yates Mauney** who has resigned.

Leslie A. Runton, formerly president of the Russell Manufacturing Co., Middletown, Conn., has been named president of Timely Clothes, Inc.

Judson Bemis of Minneapolis has been named president and chief executive officer of the Bemis Bro. Bag Co., succeeding **F. G. Bemis** of Boston who has been elected chair-

F. G. Bemis

Judson Bemis

man of the board. **C. W. Akin** of Minneapolis has been named executive vice-president. **R. V. Scott** of St. Louis and **B. L. Willmore** of Boston have been appointed vice-presidents, and **J. T. Braxtan** of St. Louis has assumed the position of assistant secretary.

Earle R. Stall, Jr., manager of Cone Mills Corporation's American Spinning Plant and Florence Plant, has been named assistant vice-president of the company. * * * **Chester W. Arnold** has assumed the responsibility for all matters relating to health and safety of company employees. * * * **James R. Perrin,** assistant treasurer, was recently presented "The Distinguished Service Award" by the Greensboro Junior Chamber of Commerce, which named him "Man of the Year." * * * **Floyd W. James** has been promoted to assistant overseer of carding on the third shift at the White Oak plant. * * * **Albert James Pearson** has been named supervisor of finishing in the corduroy department at Union Bleachery.

Houston Jewell of Crystal Springs Bleachery, Chickamauga, Ga., has been elected to the board of directors of Cotton Council International. Mr. Jewell was named to fill the unexpired term of the late F. E. Grier of Greenwood, S. C.

Thomas A. Roberts, general manager, has been named vice-president in charge of the Ellenboro (N. C.) Mills division of The Massachusetts Mohair Plush Co.

Joshua S. Miller, formerly manager of product development and research, has been named director of sales for Burlington (Wis.) Mills, Inc.

Forbes Bradley, vice-president of West Point (Ga.) Manufacturing Co., has retired. Mr. Bradley was in charge of the Columbus (Ga.) Mill Division.

Continued on page 30

SOUTHERN STATES' NEW COILER LINE HAS ALL ENGINEERING AND DESIGN FEATURES WANTED BY MILL MEN

To provide mills with a premium-quality coiler, every engineering and design feature wanted by mill men has been included on the new Southern States Coilers.

A new center adapter (see cutaway view above) permits the stand, head, and base to swivel as a unit within the adapter collar. The coiler may thus be offset for can diameters up to 20 inches and still maintain a straight gear drive take-off for coilers of all makes.

Southern States Coilers are designed for direct attachment to any make of card, left or right hand. Installation is rapid and economical. Other outstanding features of the Southern States Coiler include: ball bearing throughout—head, shaft, cantable ... cut tooth gears throughout ... tubular steel stand ... precision-ground calender rolls ... self-aligning pillow blocks on upright and calender roll shafts ... fully adjustable can table ... quickly detached coil spring roll-loading device ... and many others fully described in our Technical Bulletin 205, available from your Southern States representative or by mail direct from us.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

For further information use Handy Return Card, Page 225

IT'S NEW-IT'S COMPACT-IT'S COMPLETE

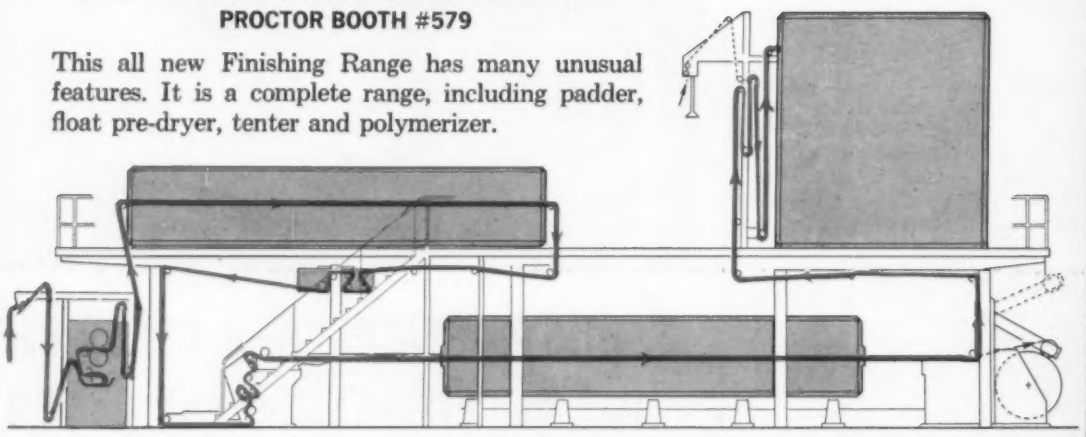
Proctor®

presents an All-New, More Compact

TEXTILE FINISHING RANGE

SEE IT AT THE ATMA EXHIBITION—ATLANTIC CITY
PROCTOR BOOTH #579

This all new Finishing Range has many unusual features. It is a complete range, including padder, float pre-dryer, tenter and polymerizer.



Each component has special, important features of its own:

The PROCTOR PADDER

available in 2- and 3-roll models, allows manual positioning of the rolls for the best operation with all weaves of all fibers, whether finishing, impregnating or dyeing.

The PROCTOR FLOAT DRYER

air-supports the cloth as it dries, with absolute freedom from marring or wrinkling and at minimum tension. It performs equally well as pre-dryer, intermediate dryer or as a special dryer for plushes, velvets, crepes or heavily coated fabrics, foils or papers.

The PROCTOR UNIVERSAL TENTER

dries, cures or heat sets all knitted or woven fabrics of all fibers or blends. It features a compact, low-head housing and an exclusive pin, clip or combination pin-clip tenter chain.

The PROCTOR CONTINUOUS ROTARY POLYMERIZER

is the *only* fixed curer with *variable* holding capacity! It will retain from 40 to 880 yards of fabric for longer, more easily controlled curing at lower temperatures, while maintaining high production levels.

ATMA

American Textile Machinery Exhibition - International

Proctor Active Displays Will Include:

PROCTOR-FORM—producing perfect webs for non-wovens;

PROCTOR CONTROLLED WEIGHING BELT—continuously weighing and controlling the flow of low density materials;

PROCTOR FIBER BLENDING FEED—accurately proportioning stocks for blending.

Proctor®

PROCTOR & SCHWARTZ, Inc.
Seventh Street & Tabor Road, Philadelphia 20, Pa.

You can't give your cleanup man a better hose for lint and dust control! You see, TEXAIR Hose is designed specifically for millwork by the G.T.M.—Goodyear Technical Man—and his colleagues. It has everything the important job demands: light weight and flexibility—superior resistance to machine oils—a distinctive red cover that won't transfer dirt to user's hands. And TEXAIR Hose lasts longer—still does a perfect job long after ordinary hose would have softened up, cracked or started to slough off. Little wonder it's a familiar sight in so many well-run mills!

GOODYEAR
GOODYEAR INDUSTRIAL PRODUCTS G.T.M.-Specified
TEXAIR Hose for textile mill use
A Extra-tough cover resists oil, weathering, abrasion
B Vertical braids of high-tensile rayon cord for exceptional strength with great flexibility
C Tube that resists oil, air, water
B
TEXAIR is available in long, continuous lengths in sizes from 3/16" to 1½" i.d.

Let a G.T.M. uncover a real need for a new product and—presto—it's soon available, carrying the respected Goodyear label.

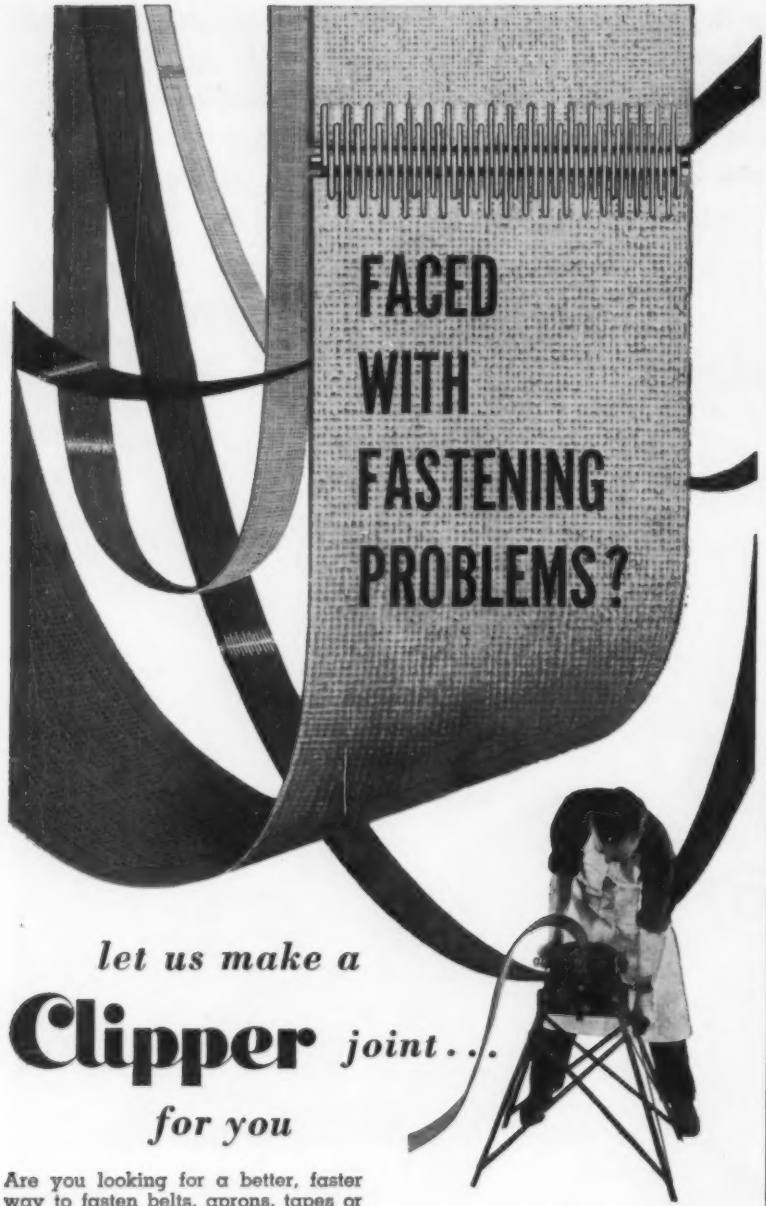
And that's only one of the reasons the G.T.M. and the Goodyear Distributor rate so high—wherever Conveyor Belts, V-Belts or any other industrial rubber is used. You'll find your best source for any of these under "Rubber Goods" or "Rubber Products" in the Yellow Pages. Or write Goodyear, Industrial Products Division, Akron 16, Ohio.

lots of good things come from

GOODYEAR

Texair—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

THE GREATEST NAME IN RUBBER



let us make a

Clipper *joint . . .*

for you

Are you looking for a better, faster way to fasten belts, aprons, tapes or ribbons? Would you like to slash maintenance time by putting an easy-to-fasten joint in endless belts? The fastest way to join these ends is with Clipper Hooks and Lacers.

Long used for lacing power transmission belting, Clipper fasteners are now proving their cost-cutting value in materials handling equipment, automatic pin setters, laundry equipment, food harvesting and processing equipment and in many other applications.

They produce a smooth, flexible joint in a hurry.

Let us demonstrate the advantages of a Clipper joint on the product of your choice. Send us a small sample (or the complete belt, apron, tape, or what have you) and we'll make you a Clipper joint FREE, without obligation.

Write, wire or call today for details and literature.

Ask your Industrial Distributor for Clipper Products

Clipper BELT LACER COMPANY

980 Front Ave., N. W., Grand Rapids 2, Michigan

PERSONAL NOTES

(from page 27)

J. A. White has been appointed general manager of manufacturing for the synthetics division of J. P. Stevens & Co., Inc., succeeding the late H. R. Turner, Sr. Mr. White will be assisted in the management of the eighteen plants of the synthetics division by five group managers. * * * At the Greer (S. C.) Plant, **Charlton E. Miller** has assumed duties as recreational director. * * * **George O. Porter** has been named superintendent of the Seneca (S. C.) Plant of the Utica-Mohawk group.

Harold Owen has joined the engineering staff of the Ware Shoals, S. C., division of Riegel Textile Corp. **Norman H. Jenkins** has resigned to accept the position of superintendent of preparation at the Saybrook Division of Inman (S. C.) Mills. **Gary Gray** has been named to succeed Mr. Jenkins as overseer of the card room. **Richard Anderson,** formerly night overseer of weaving, slashing, and cloth rooms, has assumed duties as night overseer of the cotton mill. * * * **Robert A. Collinge,** chief industrial engineer at the Trion, Ga., division, has resigned.

Professor E. B. Grover has been appointed to head the textile technology department in the textile research center of North Carolina State College. The new department has been created through the merger of the department of fiber and yarn technology and the department of fabric development. * * * **Dr. Joel Lindberg,** assistant director of the

Dr. Lindberg

Swedish Institute for textile research in Gothenberg, Sweden, will join the textile research center on July 1. Dr. Lindberg will be engaged in the development of the new and broadened program of basic textile research.

Continued on page 34

FREE MAIL ANALYSIS

P-K Textile
Heat Reclaimers

RECOVER 25-50% WASTE HEAT

A simple economy takes place with P-K Textile Heat Reclaimers. Waste hot water pre-heats incoming cold water. This recovers 25-50% waste heat. It reduces fuel costs. It increases boiler capacity. Savings run $8,000 a year and more. Installations pay for themselves completely in as little as nine months!

P-K Textile Heat Reclaimers are custom fitted to the needs of each mill. Single unit construction saves valuable floor space. Quick opening doors simplify inspection, minimize downtime. A patented P-K Roto-Screen traps lint, scum and other fouling agents. Point by point they reflect the unmatched experience, care and responsibility of the largest and oldest manufacturer in the field.

FREE MAIL ANALYSIS. We'd be pleased to estimate the advantages of a P-K Reclaimer for your own mill. Our special mail analysis form makes it easy. You simply outline your conditions to us. We send our estimates to you by return mail. Too, we'd be glad to discuss the advantages of complete modernization from steam injection to a continuous hot water system. No obligation. Just return the coupon.

TYPICAL CASE HISTORIES:

At Stanley, N. C., the Textile Division of Talon, Inc. obtained a needed increase in hot water capacity, improved product quality and saved $1,000 a month in fuel costs with a P-K Reclaimer and a 7,000 gal. P-K accumulator tank.

At Bangor, Pa., the Blue Ridge Textile Co. saved $8,000 a year on fuel costs. P-K Reclaimer located outside dye house paid for itself in nine months.

20

Patterson Kelley
Laundry and Textile Division

P-K Steam Mixers • P-K Boiler Return Systems • P-K Heat Exchangers •
P-K Pre-Krete Lined Storage Water Heaters

PATTERSON KELLEY CO., INC.
2804 WILSON STREET
EAST STROUDSBURG, PENNSYLVANIA

Please send your special mail analysis form and literature on P-K Textile Heat Reclaimers.

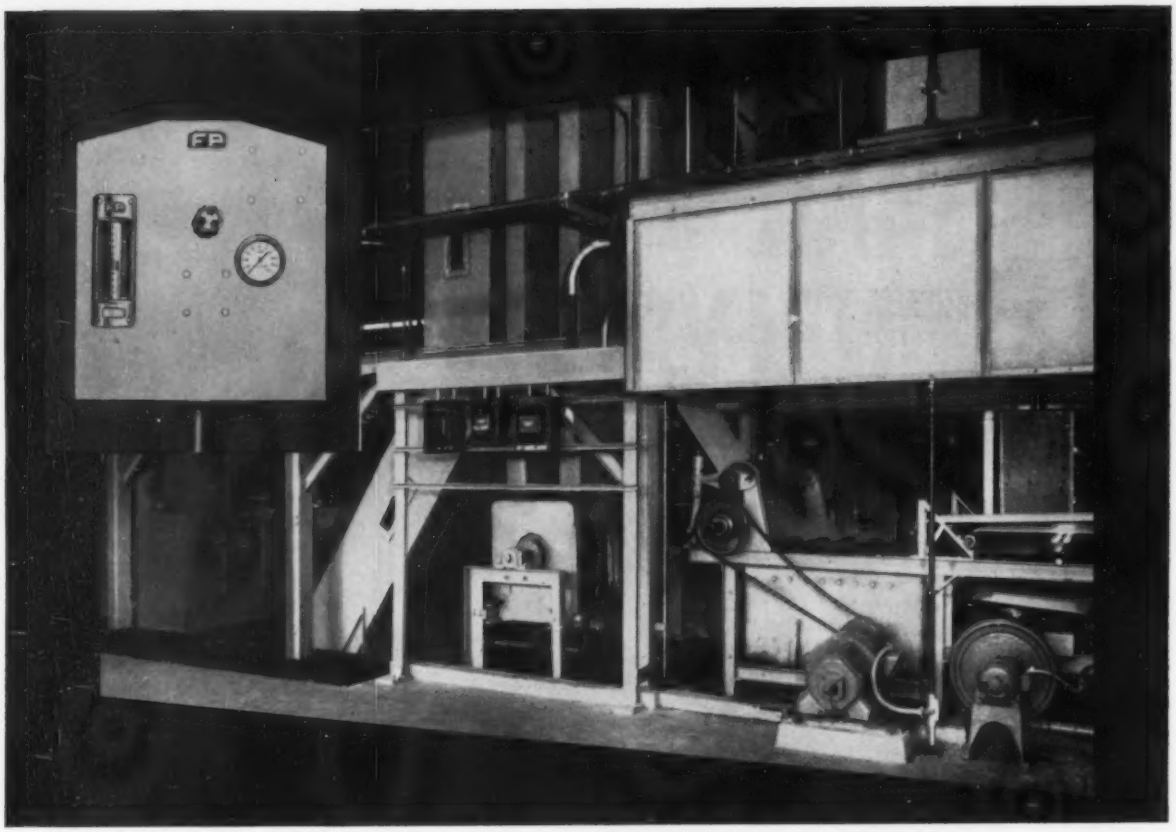
We use steam injection for heating water No ☐ Yes ☐

Name _____ Title _____

Company _____

Street _____

City _____ Zone _____ State _____



New bleaching idea from Pennsalt helps cut your chemical costs!

Pennsalt's latest technical service aid to textile finishers is a new, low-cost process* for introducing chlorine gas directly into continuous peroxide bleaching systems. The process adds chlorine to your caustic desizer, caustic saturator, and/or to the washer preceding the peroxide saturator. The result—*substantial chemical savings.*

The Pennsalt chlorination process is simple, yet effective . . . requires no expensive additional finishing equipment . . . no complex testing procedures . . . no additional operators. The simple, inexpensive control equipment pays for itself quickly through reduced chemical costs.

Pennsalt's textile finishing service can help you reduce finishing costs through direct gas chlorination. Let us give you a thorough demonstration in your mill at no charge. Ask your Pennsalt representative for details, or write Industrial Chemicals Division, PENNSALT CHEMICALS CORPORATION, 3 Penn Center, Philadelphia 2, Pa.

To get the most from your finishing operations ask for Pennsalt textile service. Assistance like this is only a part of the complete, personalized technical service available from Pennsalt. And for the most from your chemicals be sure to ask for Pennsalt caustic soda, chlorine, hydrogen peroxide, ammonium chloride, ferric chloride and surfactants.

*Patent applied for

See our complete listing in Chemical Materials Catalog

Industrial Chemicals Division

SALES OFFICES: CHICAGO • DETROIT • NEW YORK • PHILADELPHIA
PITTSBURGH • ST. LOUIS • APPLETON • ATLANTA

PENNSALT OF WASHINGTON DIVISION, TACOMA • PORTLAND
INDUSTRIAL QUÍMICA PENNSALT, MEXICO CITY

Pennsalt Chemicals
ESTABLISHED 1850

Trouble free controls cut maintenance costs—and increase production

...That's why more and more textile plants specify

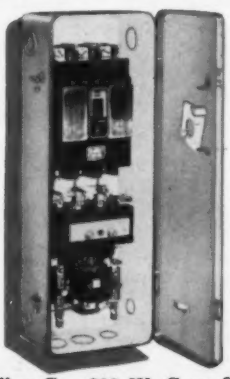
ALLEN-BRADLEY

Quality Motor Control

Records show that Allen-Bradley quality motor controls are real "moneysavers." Their consistent, trouble free performance reduces inspection and maintenance costs drastically.

It's the simple solenoid design of A-B starters that makes this operating reliability possible. With only ONE moving part, you are assured millions of dependable operations. Also, their double break, silver alloy contacts are always in perfect operating condition until completely worn away . . . and remain so *without* servicing. Insist on Allen-Bradley—the *quality* motor control—and cut control maintenance costs in *your* plant.

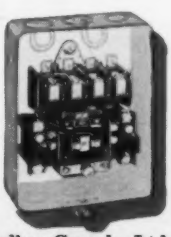
There's a trouble free A-B starter for every textile machine application



A-B combination starter with circuit breaker. Bulletin 713.

Manual starting switch in lint-tight enclosure. Bulletin 1209.

Combination starter with manual disconnect switch. Bulletin 712.



Automatic across-the-line solenoid starter. Bulletin 709.

Allen-Bradley Co., 208 W. Greenfield Ave., Milwaukee 4, Wis. • In Canada: Allen-Bradley Canada Ltd., Galt, Ont.

ALLEN-BRADLEY Quality Motor Control

TOLEDO SCALES that PRINT Complete Weight Records for You . . .

. . . **THE ANSWER** to prevent "guesswork" and errors in cost control!

BENCH SCALE PORTABLE SCALE

FLOOR SCALE

Toledo Printweigh Scales are available in a wide range of models, including Portable, Floor, and Bench types as illustrated; also Built-in, Hopper, Overhead Track and Motor Truck types.

Human errors in reading, remembering and recording weights are eliminated with Toledo Printweigh "400" Scales. They're the surest way to satisfy your requirements for weight records that are complete and indisputable.

Weights are printed in full figures, even when unit weights are used. Choice of printing on 8½" x 11" forms, or on tickets; also on strips. Weight data may be transmitted electrically for recording on remote adding or other office machines. "Memory" feature available for printing weight data, even after load is removed.

Toledo Printweigh "400" Scales give new flexibility and efficiency in weighing . . . to cut costs, guard quality, prevent profit-stealing weighing errors. Ask your Toledo representative for the full story on Printweigh Scales, or WRITE TODAY FOR BULLETIN 2017. TOLEDO SCALE, Division of Toledo Scale Corporation, Toledo 12, Ohio
(Toledo Scale Co. of Canada, Ltd., Windsor, Ont.)

"MISFIT" SCALES MULTIPLY COSTS

Scales can become "misfits" as a result of changes in plant layout, materials handling, inventory controls, value or quantity of materials weighed. If this has happened in your plant, the results can be costly. For example: weighing errors, production bottlenecks, materials handling inefficiencies. Be sure your scales are adequate for the job. Ask your Toledo representative about a scale adequacy check in your plant, or send for the Toledo Weight Fact Kit.

SERVICE

TOLEDO® *Headquarters for Weighing Systems*

PERSONAL NOTES

(from page 30)

Leon H. Tompkins has been named to head the newly combined purchasing departments of The William Carter Co. * * * **William E. McDaniels,** vice-president and production manager, and **H. Horace Otway,** vice-president and sales manager, have been elected to the board of directors.

Mr. McDaniels

Mr. Tompkins

Richard Finger has been named to the newly created post of industrial engineer at the Ivey Weavers plant of Burlington Industries, Inc. Mr. Finger was transferred from the Cramerton Mills where he held the same position.

Marvin Stuttz has assumed duties as purchasing agent for A. M. Smyre Manufacturing Co., Gastonia, N. C.

P. E. Hilley, formerly manager of the Clarkdale (Ga.) Mill of Coats & Clark, Inc., has been promoted to assistant general manager of the company's southern spinning plants.

Garnett C. Kincaid has been named treasurer of Magnet Mills, Inc., Clinton, Tenn., succeeding **R. S. Moxley,** who has resigned. Mr. Kincaid will continue to serve as secretary. **Edwin L. Brown** has been promoted from office manager to assistant vice-president, and **L. H. Connatser,** formerly chief accountant, has been appointed assistant secretary-treasurer.

J. Craig Smith, president of Avondale Mills, Sylacauga, Ala., has been elected president of the National Cotton Council.

Harold Brissey, formerly overseer of preparation at the Haynsworth plant of Woodside Mills, Inc., has been promoted to assistant superintendent of the Liberty, S. C., plant.

Maurice E. Calby, Jr., has joined the research and development divi-

Continued on page 42

On the Spot Personal Attention

. . . right in your own mill!

Problems in your Card Room? Ask a TUFFER Sales Engineer to visit your mill and give you assistance in working out a solution. You'll get logical, workable suggestions and recommendations that mean increased production, improved quality, less down time. Your inquiry involves no obligation.

Tuffer TRADE MARK

CARD CLOTHING

Manufacturers of Card Clothing since 1866

HOWARD BROS.

T3

WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga., Gastonia, N. C., Greenville, S. C.

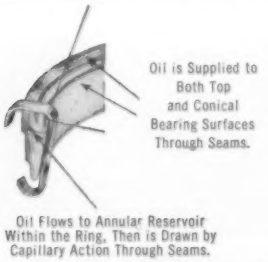
Direct Representation in Canada

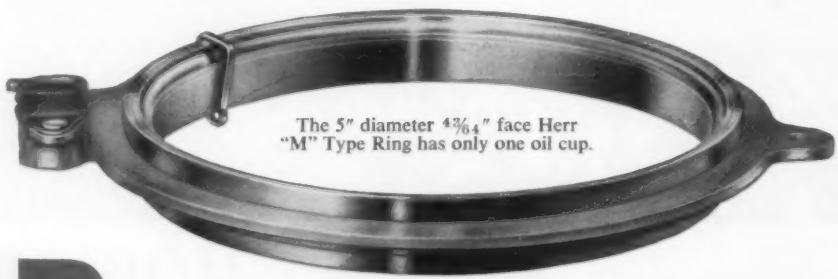
TUFFER PRODUCTS Card Clothing for Woolen, Worsted, Cotton, Asbestos and Man-made Fibers • Napper Clothing and Brushes • Top Flats re-covered and extra sets loaned at all Plants • Lickerins rewired at Southern Plants • Hand Stripping Cards

REDUCE
DOSAGE...
Says the Doctor
The New "M" Type Conical Ring
needs only drops of oil to produce
● More Uniform Lubrication Without Oil Waste.
● Longer Traveler Life.
● Longer Ring Life.
● Cleaner Yarn.
● Higher Spindle Speeds.
● Reduced Yarn Breakage.

The "M" Type Herr Conical Ring introduces a new, controlled method of lubrication. This outstanding improvement in ring lubrication is called Seam Lubrication — a method that utilizes the principle of capillary attraction. Thoroughly tested for several years in some of the largest textile plants, the "M" type Herr Ring provides more uniform lubrication than has been possible before.

There is no oil waste. Every drop of oil is utilized being drawn by capillary attraction through the top and conical seams. There are no wicks that leak oil — no rewicking. The operation is clean. Maintenance costs are lowered. Oil consumption is greatly reduced, yet faster spindle speeds are possible without extra wear to ring or traveler. Write today to get all the facts that make new profits.


Oil is Supplied to Both Top and Conical Bearing Surfaces Through Seams.
Oil Flows to Annular Reservoir Within the Ring, Then is Drawn by Capillary Action Through Seams.



HERR MANUFACTURING CO., INC.

310 FRANKLIN STREET • BUFFALO 2, N. Y.

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON, FIBERGLASS AND BLENDED YARNS OF ALL TYPES

Velvet surfacing operation on Sonoco cones

The Velvet cone surface—another Sonoco "first"!

Sonoco created the Velvet Surface to overcome the problems of winding fine cotton and synthetic yarns. This surface takes the primary winds without slippage —and, in delivery, the yarn feeds off without sloughing.

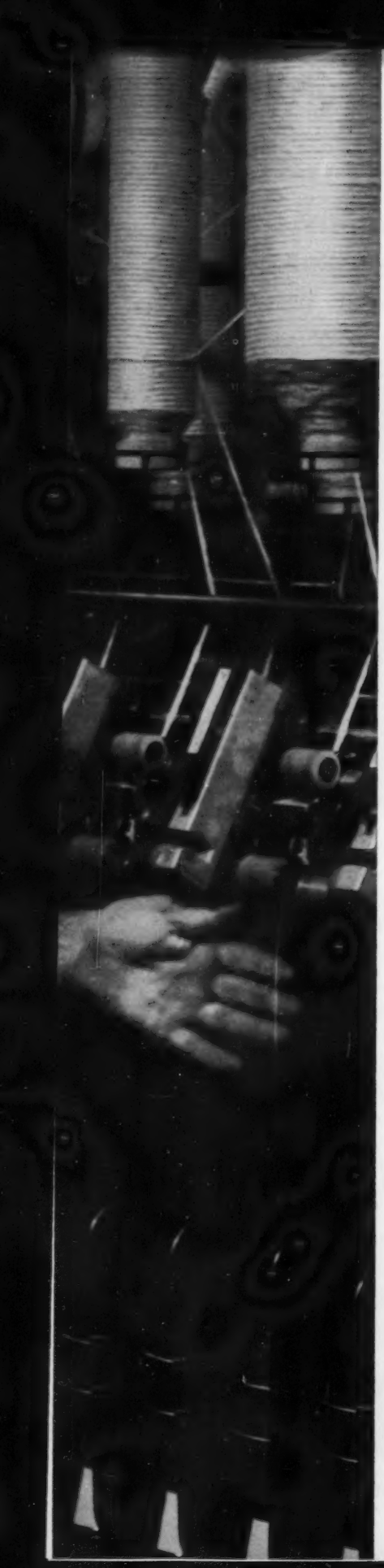
Trouble-free cone winding and delivery depends on control of yarn tension. In all cone winding, tension at the traverse extremes pulls yarn toward the cone center. Only cone surfaces which restrain this tension can provide the foundation for a well formed package. When the cone and the cone surface are selected for a specific yarn, a big step is taken toward better and faster production. Sonoco can supply you with the right combination.

The Sonoco Velvet Surface cone is typical of the dependable products manufactured by a fully integrated company with 60 years' experience in creating and producing all types of textile paper carriers. Only Sonoco, in its field, provides the knowledge, skill and capacity to meet the ever-changing techniques of the textile industry. Let Sonoco experience help you!

SONOCO
Products for Textiles
SONOCO PRODUCTS COMPANY

ATMA
American Textile Machinery Exhibition - International
Booth Nos. 82 and 83
May 23-27, 1960

Main Office—Hartsville, S. C. • Mystic, Conn. • Akron, Ind. • Lowell, Mass. • Phillipsburg, N. J. • Longview, Texas • Philadelphia, Pa. • La Puente, Cal. • Fremont, Cal. • Atlanta, Ga. • Granby, Quebec • Brantford, Ontario • Mexico, D. F.



James Moore (right), overseer of spinning at Blair Mills, Belton, South Carolina, checks yarn quality with Armstrong district manager J. V. Ashley.

Accotex Cots can help you get high production of quality yarn

Maximum production of quality yarn: that's the key to profitable spinning and the goal of every spinning room overseer.

Armstrong Accotex Cots can help you get this kind of performance by minimizing such sources of trouble and expense as front roll laps, eyebrows, and yarn irregularities. The broad line of Accotex Roll Covers includes materials specially compounded to combat these common spinning problems.

Many mills have found, for example, that a switch to Accotex J-490 Cots . . . or one of the new Accotex anti-static compounds . . . will reduce front roll lapping to a minimum.

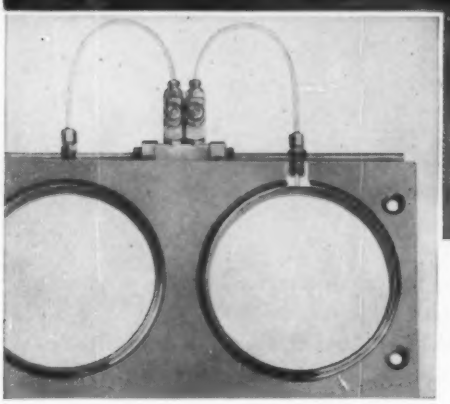
Where eyebrowing is excessive on your roving and spinning frames, Accotex NC-762 Cots . . . one of the new anti-static materials . . . will help to control it. And on some drafting systems, new, softer Accotex compounds are being used to improve break strength and reduce yarn irregularities.

Whatever your frame or fiber, there's an Accotex Cot that will help you turn out strong, uniform yarn. Your Armstrong man will be glad to work with you in selecting the cot best suited to your requirements. Call him or write to Armstrong Cork Company, Industrial Division, 6504 Ivy Street, Lancaster, Pennsylvania.

Armstrong ACCOTEX COTS

1860–1960 Beginning our second century of progress

Davis and Furber builds in *Lincoln* Power Lubrication to assure top equipment performance in the mill



Read what this leading textile machinery manufacturer says about *Lincoln* Power Lubrication of Spinning Frames

"Only Controlled Automatic Lubrication applied correctly to the Spinning Ring can assure the proper amount of uniform traveler drag on the yarn, plus a maximum ring and traveler life at known speed ranges.

"After a great deal of experimenting and testing in ring lubrication, we have chosen and recommend the Lincoln Centralized System to do the job best on our Woolen Spinning Frames.

"Lincoln System Ring Lubrication is one more advanced design feature in the Davis and Furber Woolen Ring Spinning Frame that adds up to better spinning with less end breakage, high spindle speeds and more uniform yarn twist."

Increase yield... cut operating costs

Lincoln Centralized Power Lubrication Systems apply viscous or fluid lubricants through sealed lines to all bearings on individual machines—or automated production lines. Lubricant is supplied under pressure at predetermined time intervals ...unerringly...automatically...while the textile processing machines are in operation.

It will pay you to install Lincoln's low-cost systems on your existing equipment...and specify Lincoln when you're ready to purchase new textile machinery. **Call your nearby Lincoln Distributor. Write now for Bulletins 811 and 806R.**

Lincoln

LINCOLN ENGINEERING COMPANY
Division of The McNeil Machine & Engineering Co.
5742 Natural Bridge Avenue • St. Louis 20, Missouri

PART OF THE PACKAGE

Technical help like this with your SOLVAY textile chemicals!

The bleaching process these technicians are discussing is a dramatic example of how Solvay researches its chemicals *specifically* to help textile men. As Solvay textile specialists, they are part of a continuing study of hydrogen peroxide's basic role in bleaching. From this work, Solvay developed a revolutionary new and original method* that actually reduces cotton bleaching chemical costs *up to 50%*—yet improves whiteness and other important qualities of the cloth.

*Solvay® Activated Hydrogen Peroxide Bleaching Process (U. S. Patent 2903327) —available on a non-exclusive contract and on a royalty-free basis.

Consider these advantages of placing your chemical business with Solvay:

- Textile-trained representatives available to call on you to **discuss** your problems.
- Textile-trained technical men with the most modern laboratory equipment, available to **work** on your problems.
- Textile-experienced—for almost 80 years.

SOLVAY CHEMICALS FOR TEXTILES
Caustic Soda • Chlorine • Hydrogen Peroxide
Sodium Nitrite • Mutual® Chromium Chemicals
Potassium Carbonate • Soda Ash

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N. Y.

SOLVAY branch offices and dealers are located in major centers from coast to coast. Send export inquiries to Allied Chemical International, 40 Rector St., N. Y. 6.

SOLVAY PROCESS DIVISION 85-40
Allied Chemical Corporation
61 Broadway, New York 6, N. Y.
Please send without cost:

☐ Brochure on Solvay Activated Hydrogen Peroxide Process.
☐ Call to discuss technical problem outlined in attached letter.

Name_____
Position_____
Company_____
Phone_____
Address_____
City_____ Zone____ State_____

SHADOGRAPH® Scale assures accuracy in Micronaire test

Shadograph Model 4104-A, above, is precision designed for weighing samples in conjunction with the Sheffield Micronaire testing machine. Extreme accuracy, plus greater speed and easy-to-read indication make Shadograph the choice of cotton shippers, brokers and mill operators both here and abroad. The Shadograph's ultra-visible weight indication provides a sharp shadow-edge on an illuminated dial. Mechanical indicator friction is eliminated. Visible weight and accuracy are increased. Dial is graduated with 1 inch of indicator travel equal to 15 grains, over and under. Scale does not require leveling.

Write for Bulletin 3308

Other models of Exact Weight Scales are available for color control, slashing, sliver test, yarn count, quality control, denier testing and checkweighing operations.

MODEL 4204-B

Exact Weight SCALES

THE EXACT WEIGHT SCALE CO.
922 W. FIFTH AVE., COLUMBUS 8, OHIO
In Canada: 5 Six Points Road, Toronto 18, Ont.

Sales and Service Coast to Coast

Find us in your local "Yellow Pages"

BETTER QUALITY CONTROL . . . . . BETTER COST CONTROL

PERSONAL NOTES

(from page 34)

sion of Callaway Mills Co. as product development engineer for the products of the Elm City plant.

Wallace E. McGrath has been appointed general manager of Lowell Bleachery, Inc., St. Louis, Mo., succeeding **Earl A. Hassebrock.** Mr. Hassebrock will continue as a vice-president of the company.

Henry J. McCusker, formerly executive vice-president, has been named president of Holliston Mills, Inc., Norwood, Mass., and Kingsport, Tenn., succeeding his father, the late Thomas B. McCusker, Sr. **Thomas B. McCusker, Jr.,** and **Paul T. McCusker** have been appointed treasurer and executive vice-president respectively. Henry and Thomas McCusker have been named president and treasurer, respectively of Brookfield Mills, East Brookfield, Mass., and the East Braintree (Mass.) Finishing Co. **Richard P. McCusker** has been appointed to the board of directors of Holliston Mills, Inc.

OBITUARIES

William W. Allan, 64, executive vice-president and treasurer of Baltic (Conn.) Mills.

Julian Butler, 61, vice-president of Morgan Cotton Mills, Inc., Laurinburg, N. C.

Dan M. Culp, 49, district manager of Steel Heddle Manufacturing Co., Greensboro, N. C.

Clayton W. Davidson, 60, retired industrial personnel director of Mooresville (N. C.) Mills.

Frank P. Holloway, 82, president and treasurer of Park Hosiery Mills, Inc., Knoxville, Tenn.

T. B. McCusker, Sr., 71, president and treasurer of Holliston Mills, Inc., Norwood, Mass., and Kingsport, Tenn.

Frank A. McWilliams, 73, retired personnel director of Avondale Mills, Sylacauga, Ala.

John M. Reed, Sr., 57, southern district manager of Ashworth Bros., Inc., Charlotte, N. C.

Ellison Adger Smyth, 57, president of the former Balfour (N. C.) Mills.

Herbert Snower, 52, treasurer and board member of Opelika (Ala.) Manufacturing Corp.

J. N. Summerall, 61, vice-president and general manager of LaFar Mills, Gastonia, N. C.

Richard A. Willis, Sr., 89, former executive vice-president and treasurer of Manetta Mills, Lando, S. C.

Down
with
finishing
costs—
safely!

"AC" catalysts help you achieve finer results at lower cost—through longer resin bath life, faster more complete curing of thermosetting resins, with minimum resin add-on. And Monsanto AC Catalysts are compatible with practically all finishing agents. Write for complete technical data, and expert finishing counsel, to Monsanto Chemical Company, Plastics Division, Room 746, Springfield 2, Mass.

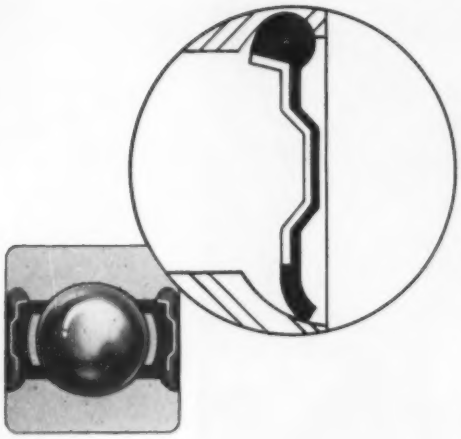
Monsanto

MONSANTO DEVELOPER IN **PLASTICS**

Other Monsanto textile chemicals: Resloom® E-63 chlorine resistant resin; Resloom E-50 cyclic urea resin; Resloom HP and M-75 melamine resins; Stymer® sizes; Lytron® polystyrene latices®

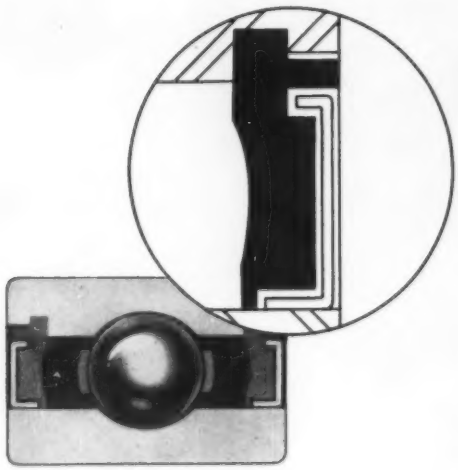
IN *Sealed* BALL BEARINGS

MARLIN-ROCKWELL RELIABILITY COUNTS



MRC *Synthe-Seal*®:

- flexible synthetic rubber seal is bonded to steel core for strength
- keeps dirt and moisture out — seals lubricant in
- resists operating pressures
- normal operating range from —80° F. to +225° F. Special materials available for higher temperatures
- reduces maintenance time
- satisfactory performance in thousands of applications
- best seal for AFBMA standard single-row width bearings



MRC *Labri-Seal*®:

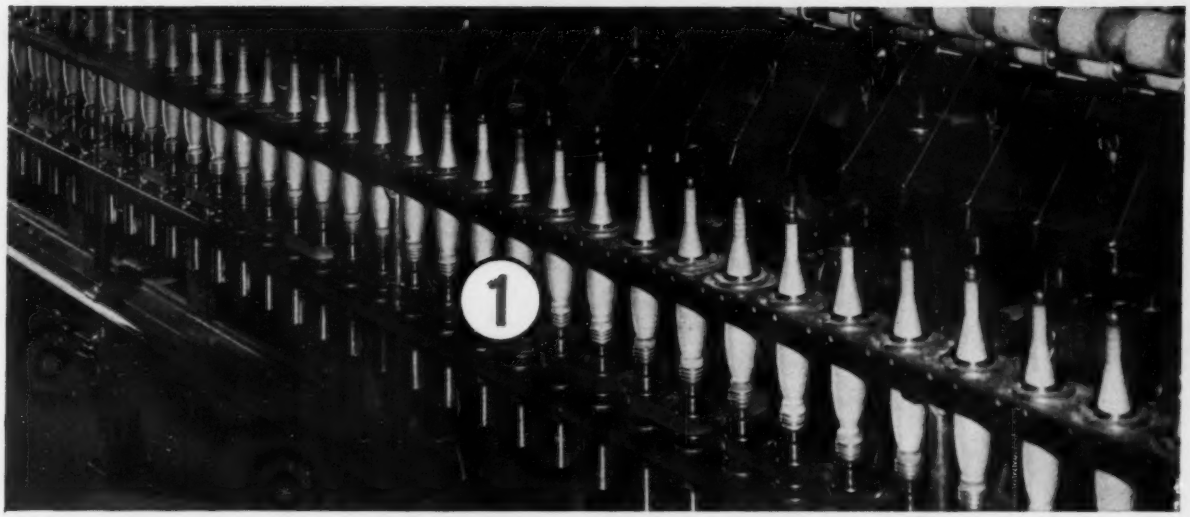
- combines a rotating flinger and synthetic rubber labyrinth seal
- retains long life grease
- prevents over lubrication and grease leakage
- metal flinger repels dirt and moisture and protects flexible synthetic rubber labyrinth seal
- operating temperatures from —80° F. to +225° F. Special materials available for higher temperatures
- recommended for use in the most adverse conditions of dirt and moisture
- ideal for low torque applications
- best seal available for cartridge width bearings

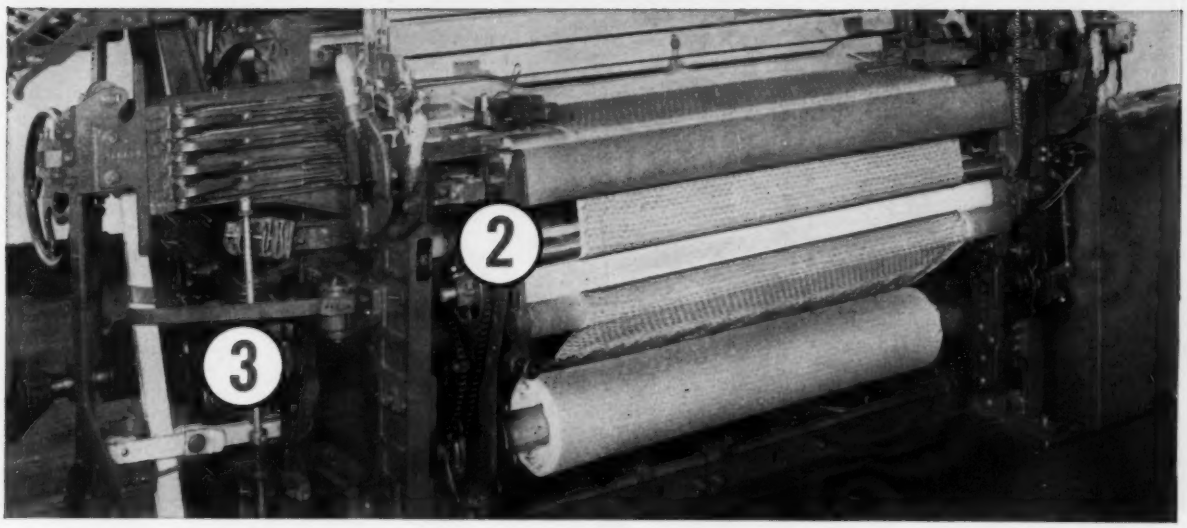
BACKED BY 62 YEARS EXPERIENCE IN THE MANUFACTURE OF BALL BEARINGS

For complete information on seals shown above, specify:
FORM 1528 MRC SYNTHE-SEAL BALL BEARINGS
FORM 1547 MRC POWER TRANSMISSION BALL BEARINGS

MARLIN-ROCKWELL CORPORATION
JAMESTOWN, NEW YORK

MRC
BALL AND ROLLER *bearings*





ESSO LUBES STAY ON THE JOB

1. Spinesso® spindle oil stays put on bearing surfaces . . . minimizes startup and running friction and dampens vibration. Outstanding oxidation and color stability. Checks corrosion in humid atmospheres. Time-proven Spinesso does a fine job, too, in oil-lubricated twister and spinning rings. For grease-lubricated twister rings, Alert® adhesive white grease is recommended.

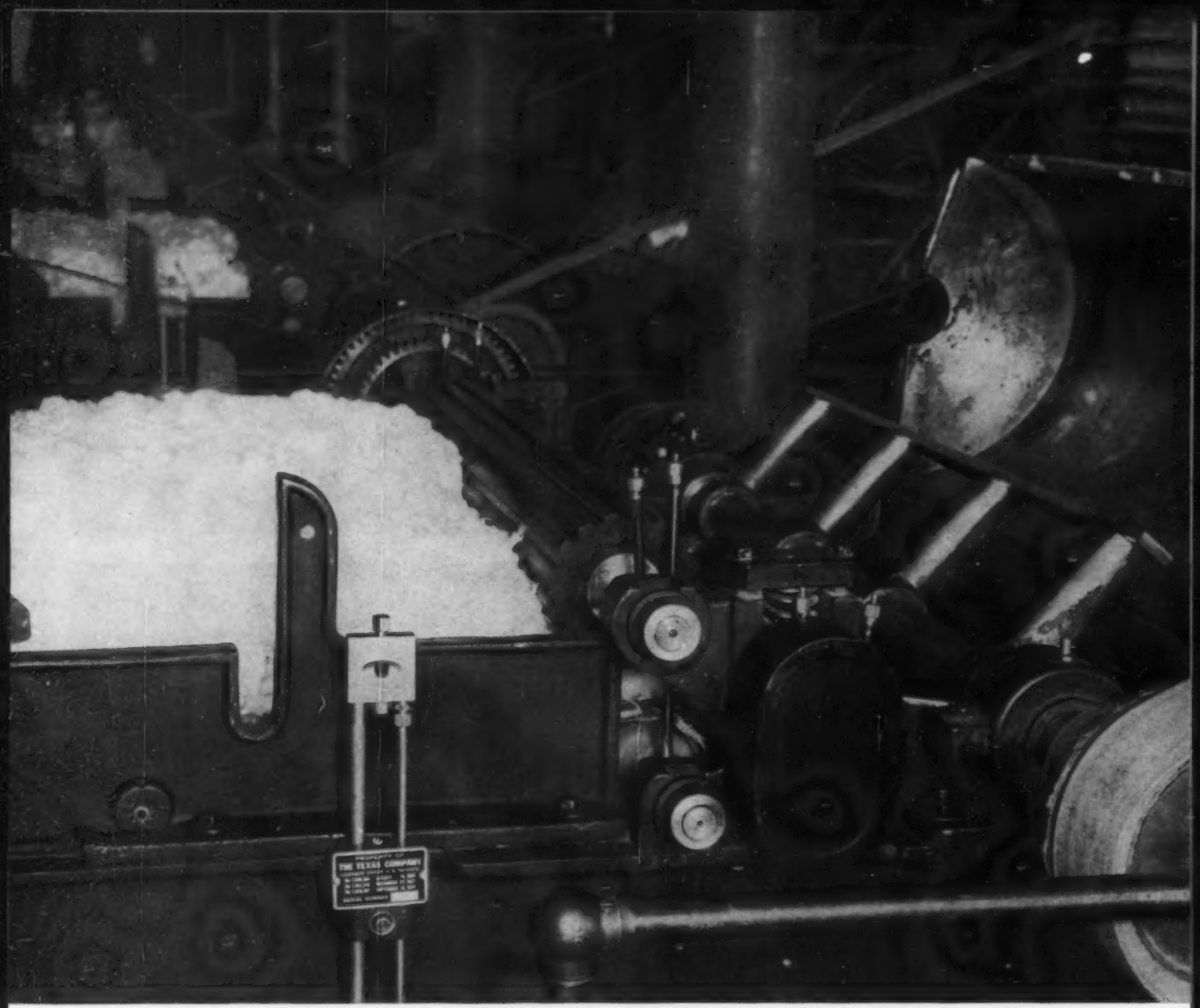
2. Nebula® EP multi-purpose grease replaces many greases . . . light to heavy! Excellent for loom gears and bearings. Outstanding in the hot, highly loaded bearings of size, dryer and calender rolls. Lubricates well under wet conditions, as found in mercerizing and scouring range bearings.

3. Millcot® anti-spatter oils stick well to rapidly moving parts and help keep down oil stains. Anti-wear agent maintains lubrication under heavy pressure and shock loading in looms. Millcot K prevents excessive leakage in older card comb boxes and spur gear cases. Millcot DX doesn't form oil "strings" and is readily scoured from fibers...an ideal lube for top roll bearings.

Efficient Esso lubricants save time, labor and machine wear. For more information contact your local Esso office, or write: Esso Standard, Division of Humble Oil & Refining Company, 15 West 51st Street, New York 19, New York.

Esso

In Industry after Industry..."ESSO RESEARCH works wonders with oil"



IF YOU WANT TO BE CONVINCED ABOUT THE EFFECTIVENESS OF COTTON CONDITIONING COMPOUNDS...

Here are the proven benefits of Texspray

Yarn is smoother. Texaco Texspray Compound increases fiber flexibility by replacing natural oils; so fibers draft more easily and uniformly, with fewer ends down.

Staple is longer. Texspray conditioning produces a larger percentage of long fibers . . . preserves them against breakage in later manufacture.

Static electricity is sharply reduced. And, in addition, Texspray practically eliminates fly and dust—often by more than 75%!

Finishing is unaffected. Texspray is completely removed in the preparatory wash. Grey goods can be dyed or printed without altering color values.

Let a Texaco Lubrication Engineer show you where Texspray fits best into your operation. He will be glad to analyze your requirements, make complete recommendations. Just call the nearest of the more than 2300 Texaco Distributing Plants, or write Texaco Inc., 135 East 42nd Street, New York 17, New York.

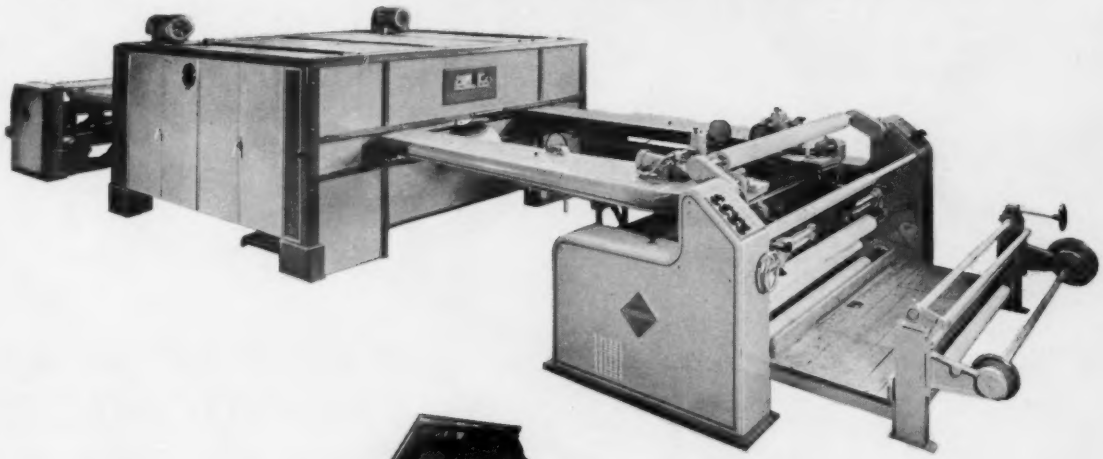
Tune In: Texaco Huntley-Brinkley Report, Mon. Through Fri.-NBC-TV

TEXACO

Throughout the United States

Canada • Latin America • West Africa

LEADING AMERICAN MILLS DEPEND ON FAMATEX TENTER FRAMES FOR HIGHEST PRODUCTION



SINGLE LAYER TENTER FRAME with combined pin-clip chain permits speeds up to 250 yards per minute. Integral gas heating system within housing or steam radiators provide maximum drying or setting at greatest efficiency.

Easily opened lateral doors and upper covering—provide quick, simple accessibility for cleaning and maintenance. Latest Overfeed and Shrinking Device guarantees even waves with a maximum of shrinkage.

See the latest FAMATEX Tenter Frame in action—Reiner Booths #1331 etc. American Textile Machinery Exhibition, Atlantic City, N. J., May 23-27.

Write for complete details and mill references.

FAMATEX

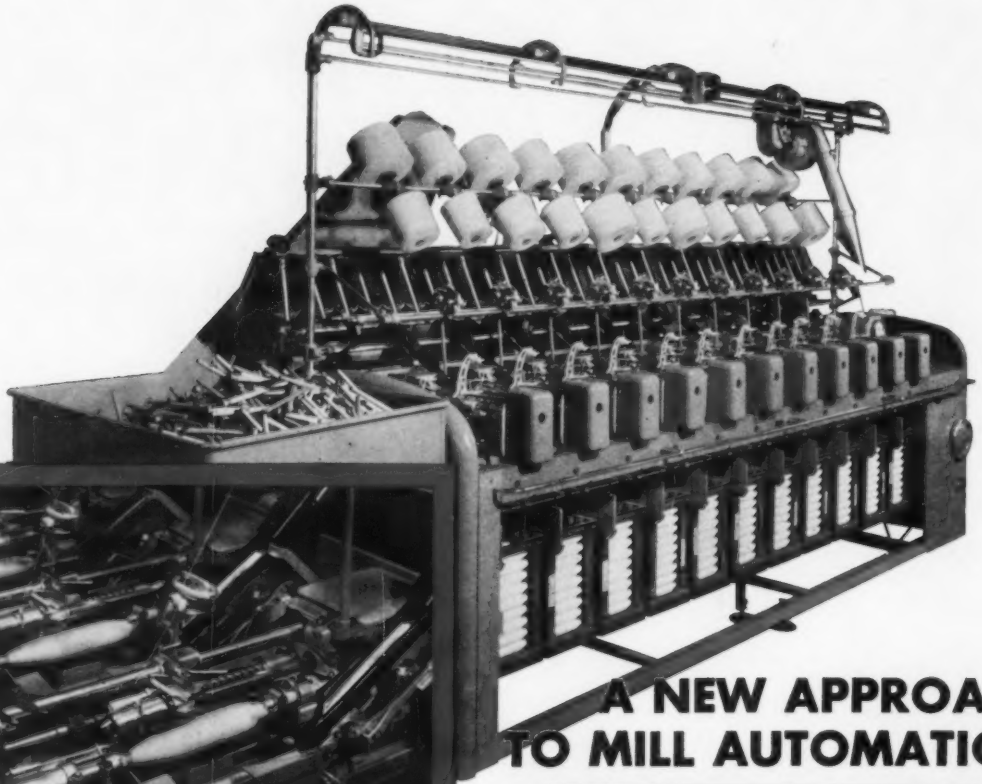
ROBERT REINER, INCORPORATED

550-564 GREGORY AVENUE

Telephone: UNion 7-0502 — From New York City call LOngacre 4-6882

WEEHAWKEN (Only 10 minutes from Times Square by direct bus) NEW JERSEY

AN HONORED NAME IN TEXTILE MACHINES SINCE 1903

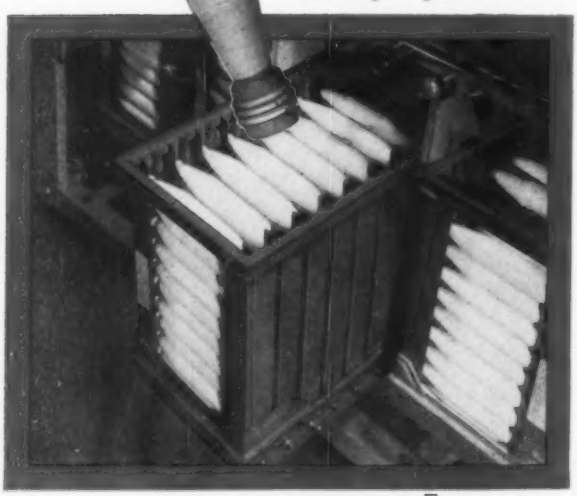


A NEW APPROACH TO MILL AUTOMATION

THE Schlafhorst SERVOLOOM AUTOCOPSER

designed to feed the Draper Automatic Filling Magazine.

- Complete winding control assures high quality package.
- The Schlafhorst precision built bobbin.
- Carefully loaded into filling magazine.



5 MAJOR ADVANTAGES *that you should investigate at the International Textile Exposition, Atlantic City, N. J., U. S. A. May 23 - 27, 1960*

1. Highest WEAVE ROOM EFFICIENCY through precision-built tip bunch.
2. Best ratings in CLOTH QUALITY through fewer and perfect transfers.
3. Lowest over-all COST PER POUND in winding plus weaving.
4. Fast RETURN on the INVESTMENT.
5. Full FLEXIBILITY per loom and spindle.

Sold and serviced by

THE TERRELL MACHINE COMPANY, INCORPORATED

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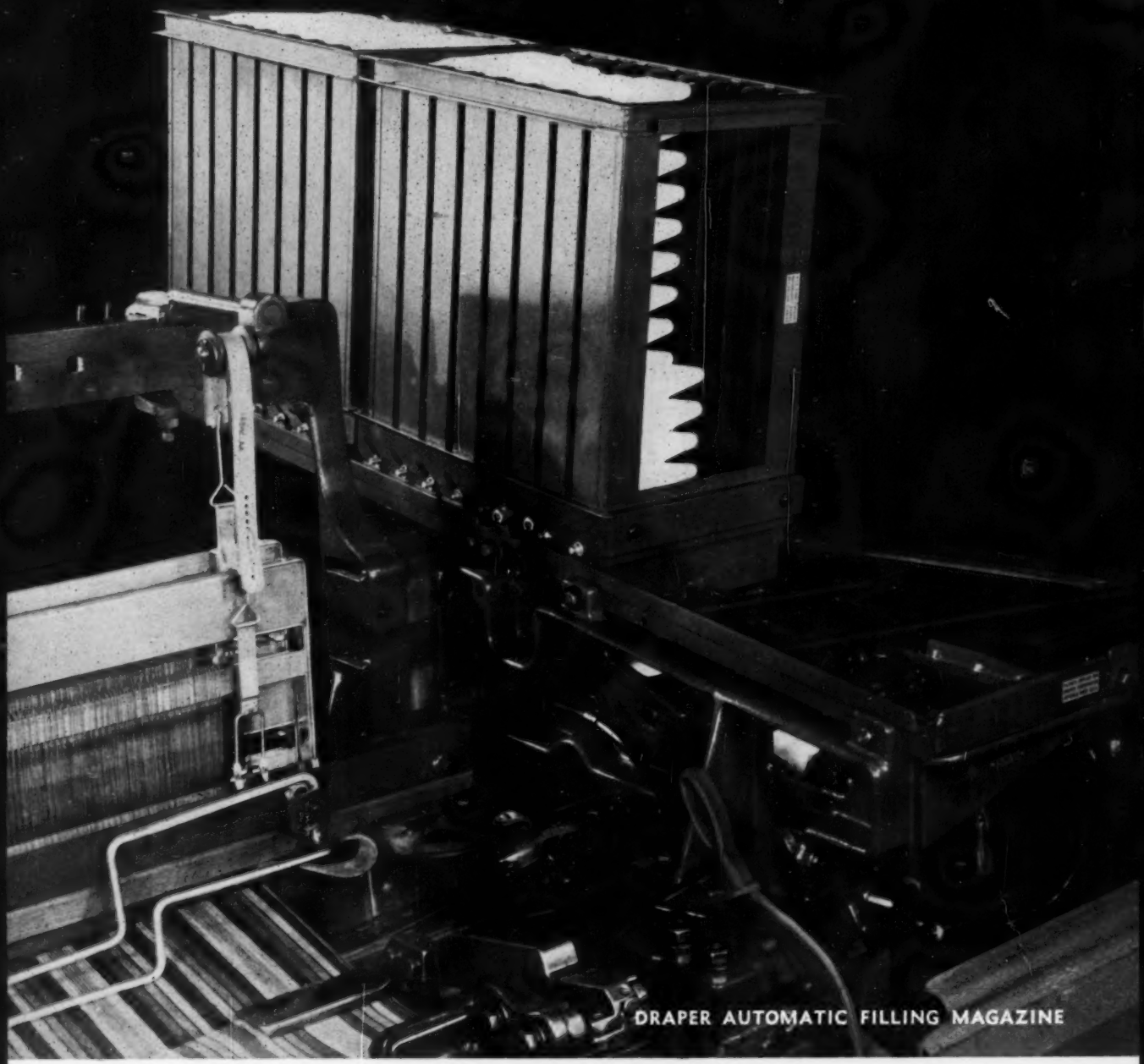
ATMA Parade of Progress



DRAPER AUTOMATIC FILLING MAGAZINE

INCREASE ***loom performance***

IMPROVE ***cloth quality***

REDUCE ***mill costs***

The Draper Automatic Filling Magazine, *brings new automation to your weave room . . .* reduces filling handling to a minimum.

Lower labor costs, more continuous loom operation, cleaner yarns and fewer cloth seconds are direct advantages gained from the use of this magazine.

Your Draper representative will be glad to show you the many benefits that can be obtained from the Draper Automatic Filling Magazine.

DRAPER CORPORATION

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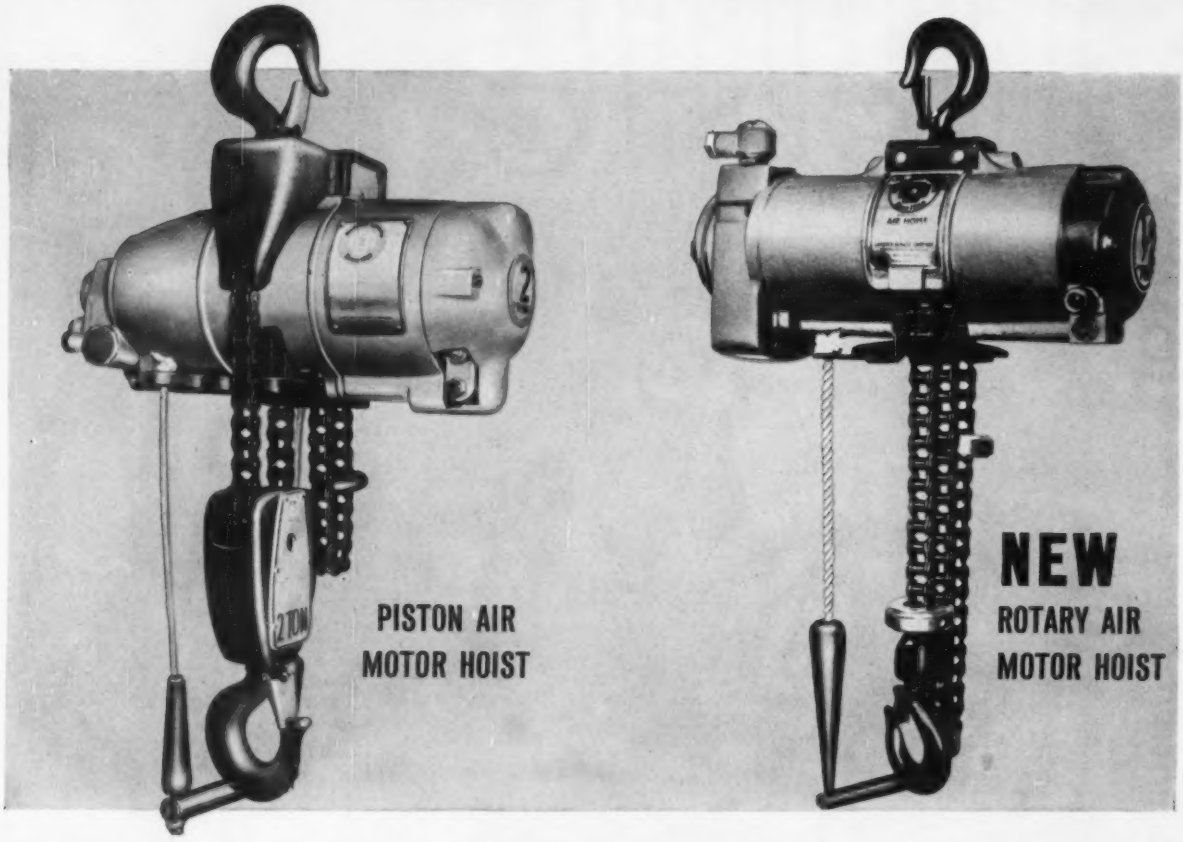
ATMA Parade of Progress...

WORK HORSE...RACE HORSE



GARDNER-DENVER PISTON AND ROTARY AIR HOISTS

Only Gardner-Denver offers lightweight overhead air hoists for *both* the "work horse" and "race horse" jobs. Axial-piston hoists provide rugged, dependable operation with the control demanded for precise spotting. That's why hundreds of industrial plants rely on this Gardner-Denver hoist. New rotary air hoists are designed for use where the combination of speed and ruggedness is of primary importance—up to 90 fpm in 500-lb. capacity.

Popular models available from 150-4000 lb. Sparkproof construction and pendent control available.

PISTON HOISTS			
MODEL	CAPACITY	SPEED	WEIGHT
86-1V10	1000	19	28
86-2V20	2000	19	78
86-2V40	4000	10	100

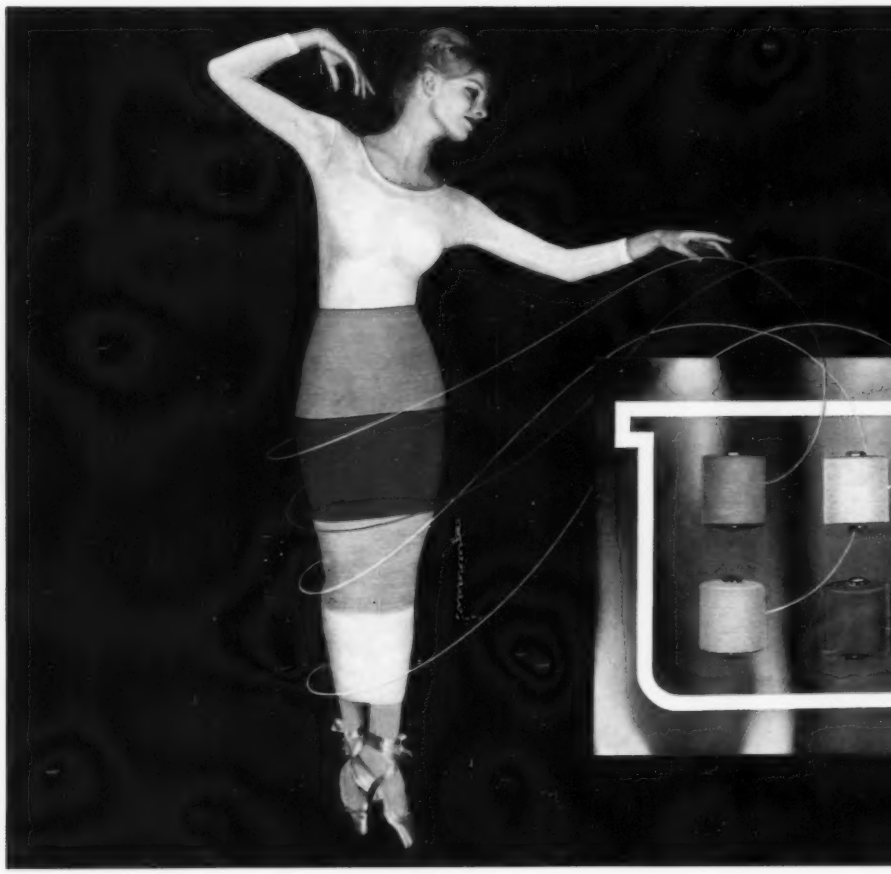
ROTARY HOISTS			
MODEL	CAPACITY	SPEED	WEIGHT
86R-5	500	90	27
86R-10	1000	40	27
86R-20	2000	20	30

EQUIPMENT TODAY FOR THE CHALLENGE OF TOMORROW

GARDNER - DENVER

Gardner-Denver Company, Quincy, Illinois

Branch Offices: Atlanta, Ga.; Birmingham, Ala.; Knoxville, Tenn.; Washington, D. C.; Teterboro, N. J. (New York Office); Philadelphia, Pa.; Pittsburgh, Pa.; New Orleans, La.; Louisville, Ky.



What made the Rainbow Makers stop s

Your life is wrapped in a rainbow of fabrics—your clothes, your car upholstery, your home. And nobody today thinks of questioning their true colors any more than one would challenge nature's rainbow.

But there was a time when textile dyers saw nothing but red! Because of spoiled, off-color dye jobs from tubs that couldn't be completely cleansed of dye residue. Perhaps you remember when the old "dip bleaching" used to result in several shades of white in one bolt of cloth. Dyers and bleachers were risking large amounts of money trying to obtain true colors and pure whites.

In 1932, Republic Steel sent a metallurgist to the Philadelphia Textile Institute for intensive research in cooperation with the textile industry. Squadrons of bleaches and dyes were hurled against an array of stainless steels. Largely as a result of this work, today non-absorbent stainless is virtually the only metal used by dyers and bleachers. Colors are true. V industry has done a superb job of mech in one continuous operation. Deliver sample swatches displayed the previou

This kind of investment in better me off for you, for everybody. It enables It permits them to produce better pro for your money. This is the real way to g the self-delusion of inflated wages. Th expected during the next few years industry—by management making t equipment and manpower for the bene

Republic Steel, World's Largest Man Alloy Steels is today supplying stainle dyeing and bleaching equipment indus

REPUBLIC STEEL

The Stainles tells you steel. Lo

CLEVELAND 1, OHIO

o seeing red

true. Whites are pure. And the
mechanizing. Bleaching is done
elivered fabrics exactly match
revious year.
er methods and equipment pays
ables management to cut costs.
er products and give you more
ay to get prosperity—not through
es. The tremendous prosperity
ears can come only through
king the most efficient use of
e benefit of everyone.
t Manufacturer of Stainless and
stainless throughout the textile
industry.

Stainless STEELMARK on a product
lls you it is made of stainless
teel. Look for it when you buy.

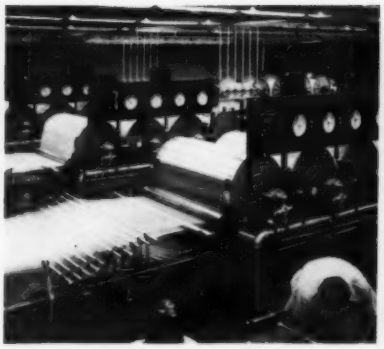
This Republic Steel advertisement points out to the 23,547,000 readers of the Post that . . .

the investment you—the management of the textile industry—make in better methods and equipment pays off for all America with better products at more-for-the-money prices.

AS ADVERTISED IN

The Saturday Evening POST

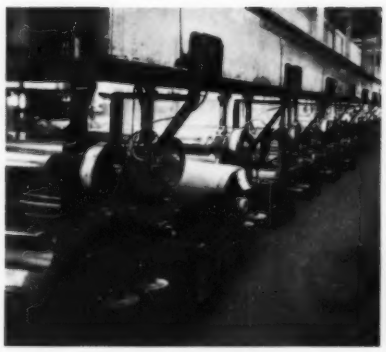
MARCH 26



High Speed Slashing

Size Co

Taylor con



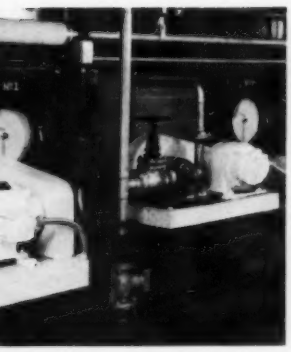
Dye Jig Operation

Pac

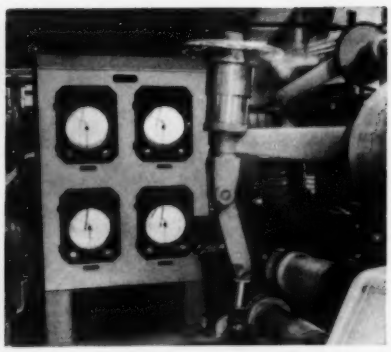
CUT COSTS IN THES

Size Cooking	Top Dyeing
Size Storage Kettle	Jig Dyeing
Slashing	Wool Scouring
Kier Bleaching	Continuous Dyeing
Continuous Bleaching	Drying
Tentering	Carbonizing
Piece Dyeing	Washing
Package Dyeing	Continuous Crabbi
Beam Dyeing	Padding
Finishing	Decating
Mercerizing	Power Plant
Skein Dyeing	Air Conditioning

Taylor started putting quality controls and sy
tems to work in the textile industry in 1919
the first instrument manufacturer in the fie
The list here shows some of the Taylor Co
trol Systems available today—ask your Tayl

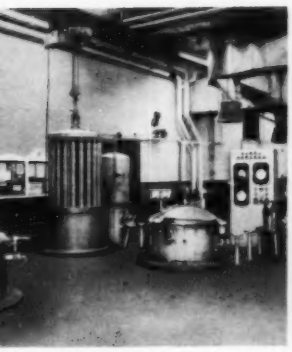


ze Cooking and Storage

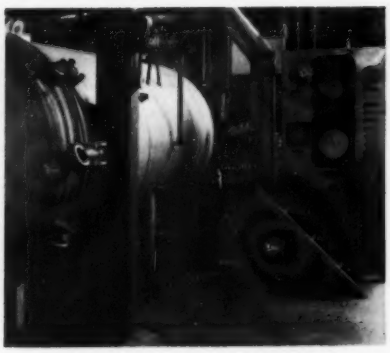


Mercerizing

ONTROLS LIKE THESE...



Package Dyeing



High Pressure Cloth Dyeing

ESE TEXTILE APPLICATIONS!

Field Engineer about putting them to work in *your* plant. Taylor Instrument Companies, Rochester 1, N.Y., and Toronto, Ontario.

Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.

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Metro-Atlantic's color fixing agent
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to low-cost commercial colors.

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- ✓ Increases the wash fastness
- ✓ Increases fastness to acid and alkali perspiration
- ✓ Produces durable hand
- ✓ Keeps costs way down
- ✓ Increased ease of application

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DRAPER BRIEFS
NEWS OF INTEREST IN WEAVING

RETARDING LOOM OBSOLESCENCE

A steady flow of new Improved Repair Parts keeps mill weaving machinery up-to-date

Draper Corporation is continually improving parts and mechanisms for its looms. Year after year, scarcely a week passes without the introduction of another Improved Repair Part for one or more Draper loom models. These are all designed by Draper research and engineering staffs to keep present mill machinery competitive with our newest looms.

Each Draper Improved Repair Part is made for application to as many mill loom conditions as possible. Although they may be copied by others, the original design of these parts can be successfully accomplished only by the loom builder, for he alone has complete information on the various loom constructions in the field.

These Improved Repair Parts help to keep older looms operating profitably. They postpone the day when a mill must consider its looms to be obsolete.

What is an Improved Repair Part?

An Improved Repair Part is one so developed by Draper engineers that it can be applied, as far as possible, to all existing Draper looms in the mills. It is designed to give one or more of the following benefits:

1. Better service throughout a longer life than the original loom part
2. Easier installation with less down time
3. Better loom operation
4. Production of higher quality fabrics

How Improved Repair Parts are developed

Ideas for Improved Repair Parts originate from Draper engineering and manufacturing departments, Construction Committee members, Draper sales and service men, recommendations of material suppliers and, frequently, from suggestions by mill superintendents, overseers, and loom fixers.

Usually extensive "mill trials" are conducted, whereby a new part proves itself in actual weaveroom operation, before it is offered for sale.

Although Improved Repair Parts are designed to replace older parts, mills often use both old parts and new Improved Repair Parts simply because supply room bins and records are set up for ordering both. Generally the older number could be eliminated to advantage.

Why Draper Parts are best for Draper looms

Uniformity of parts is necessary for successful standardization in setting loom mechanisms to gauge. Worn or poorly fitting parts just cannot be set to gauge. Competitive mills know that only with the best loom parts available can they get uniform and accurate settings, that *only with gauged settings can they get maximum production, lowest weaving costs and highest cloth quality.* These mills are first putting their looms in top condition and then running them with correct and standardized settings.

In such a planned program, differences in initial cost of repair parts are often found to be of least importance. More and more mills are using Draper parts *exclusively* to maintain their weaving machinery at highest competitive standards. Draper parts are made from the same metal mixes as original parts furnished with the loom. They are finished to master overall gauge dimensions available only to the loom manufacturer. Draper Improved Repair Parts fit Draper looms and each other better; as a result, they are dependable and last longer. Correct engineering design, selection of proper materials and use of economical manufacturing methods are determined for each Draper part by a competent knowledge of their effect upon *total loom operation.*

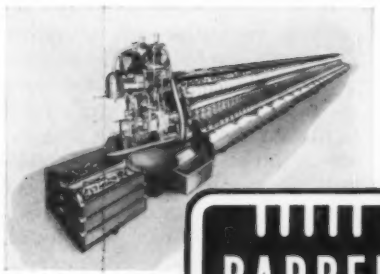
You can find out more about Improved Repair Parts from your Draper Improved Repair Parts Catalog, from Draper sales and service representatives, or by writing to Draper Corporation.

DRAPER CORPORATION • HOPEDALE, MASS.

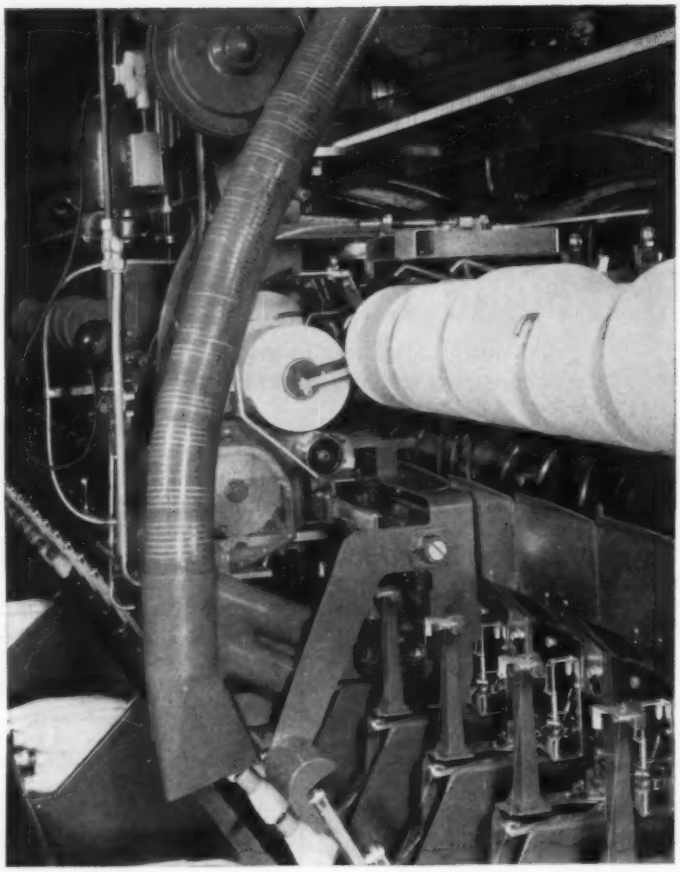
AMERICAN
TEXTILE MACHINERY
EXHIBITION

ATLANTIC CITY

NEW JERSEY
MAY 23 - 27, 1960



BARBER COLMAN



A close-up of the traveler moving along the machine, picking up the end from each bobbin and automatically tying it to the loose end of the corresponding cheese.

NEW AUTOMATIC SPOOLER

TYPE "F" MAKES LARGE CHEESES from LARGE BOBBINS

Increased capacity in the new Type "F" Automatic Spooler shown above permits spooling of cheeses up to 6½ lbs. from bobbins up to 12¼" long. This has been accomplished by the improvement of a number of distinctive Barber-Colman features. The bobbin pockets have been lengthened and the skewer mechanism enlarged. Wider bakelite winding drums have crossover grooves and are permanently balanced. Double cheese-supporting arms have built-in brakes.

Quick-set snick plates, a feature proved highly successful in the elimination of yarn imperfections, have been redesigned. A tape-breaker mechanism is an innovation which greatly improves the build of the cheese. The use of 6½ lb. cheeses as produced on this machine can lead to production improvements for a wide variety of fabrics and in a number of important processes including knitting, quillers, and shuttleless looms. *For full information on details of improvements and how the new Type "F" Automatic Spooler can benefit you, see your Barber-Colman representative.*

"EVERY KNOT A TRUE WEAVER'S KNOT"

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

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100 West Point Pacesetters sold since introduction prove

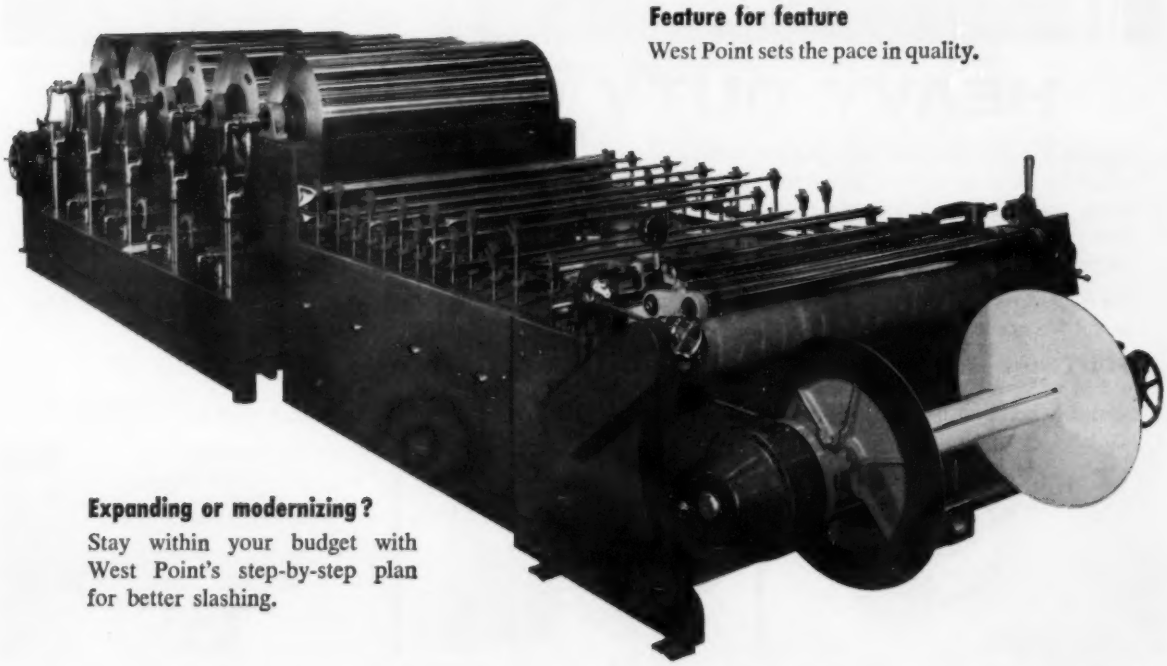
WEST POINT LEADS

in quality West Point's Pacesetter multi-cylinder slasher features the largest cylinder journals, the largest bearings, the largest sprockets, the heaviest frame, the greatest access to warp, a high-capacity versatile size box, and a rugged head end with the best and simplest beam drive.

in sales Since the October 1958 Greenville textile show, more than 90 West Point Pacesetter slashers have been ordered by leading mills. An overwhelming preference for the long-range value of the West Point Pacesetter is dramatically proved by these sales figures.

in installations West Point leads the field with more than 200 modern slasher installations in the last four years. We hope you will be able to visit several of these and see for yourself why West Point's Pacesetter is the outstanding slasher in the textile industry today.

Feature for feature
West Point sets the pace in quality.

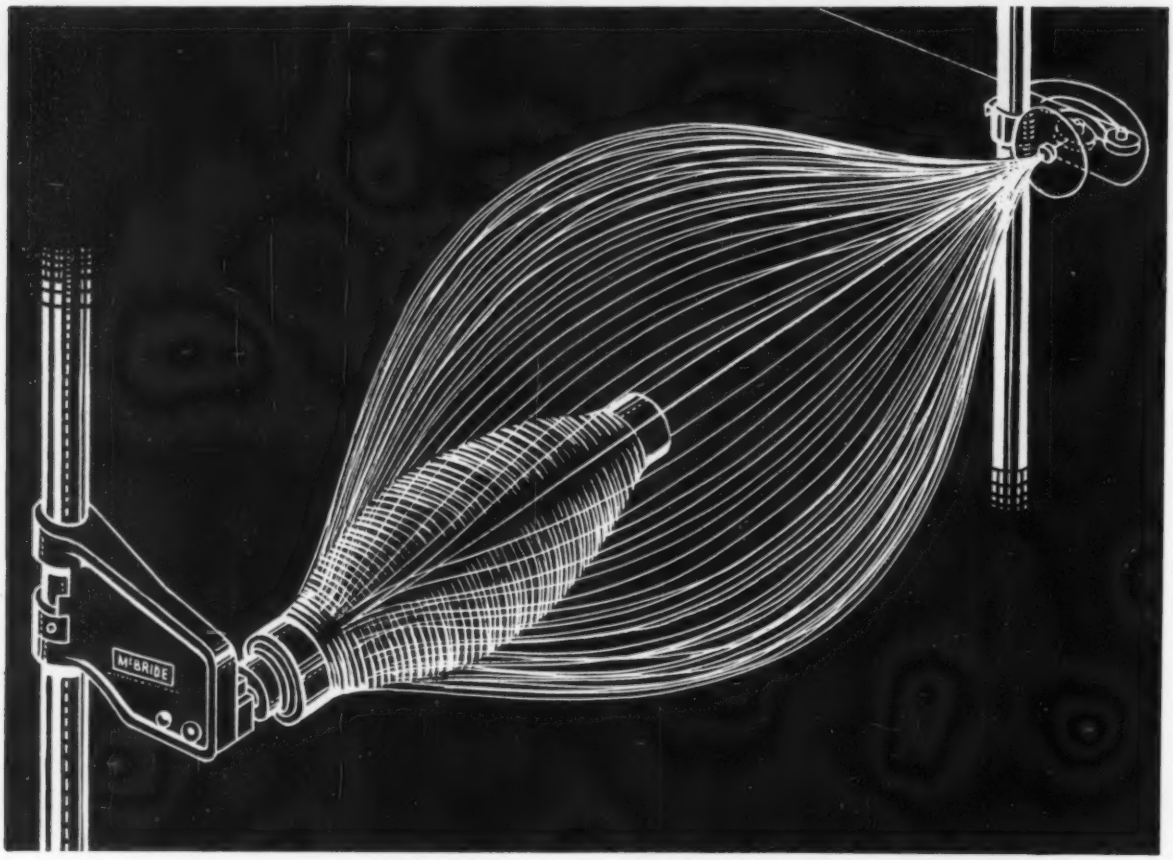


Expanding or modernizing?
Stay within your budget with West Point's step-by-step plan for better slashing.

WEST POINT *Foundry & Machine Company*

WEST POINT, GEORGIA

BE ON TARGET WITH McBRIDE...



HEAVY DUTY CREEL ARMS

Are your creel arms overloaded? Have you a problem reaching the target (entrance eye) on your tensions? If so you are losing warping efficiency. McBride's heavy duty package arm is designed specifically to correct this situation!

No Sag—even the largest packages stay straight on target for accurate over end draw off.

Fast Change—arm swings back out of way for package change, no interference with ballooning yarn.

McBride swing arm assemblies are made to fit all packages.

Instant changeover with McBride Quik change cone and large diameter package holders.

Complete new creels or fittings to modernize your existing creels.

Write today for our latest catalog.

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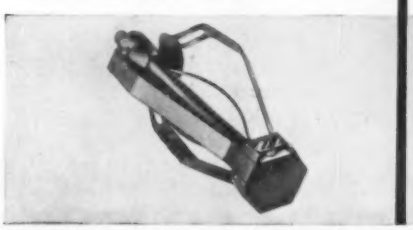
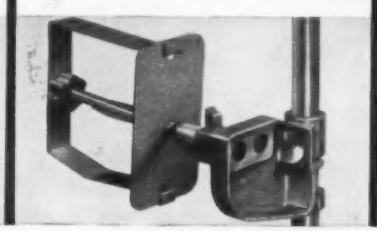


LARGE DIAMETER PACKAGE HOLDER



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CREELS *FOR EVERY PURPOSE* CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS.

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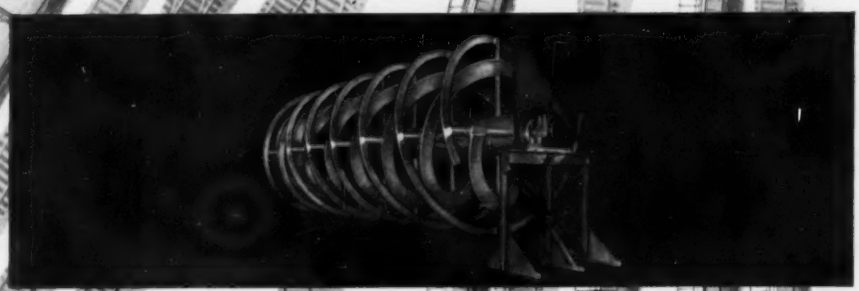
now you can have

starch uniformity by the carload



from the world's largest blender

New Penick & Ford Blender ensures production quantities at pilot plant tolerances

The big advantage of having your corn starches mixed in the world's largest blender is not size of batch, but the perfect starch uniformity you get . . . up to 60,000 lb. with one bag exactly the same as the next. The blender is part of Penick & Ford's new starch derivative plant which is designed to deliver corn products of improved quality and precise uniformity. With its new facility, P & F can offer industrial starch users production quantities to exact customer specifications, no matter how large or small the order. Call

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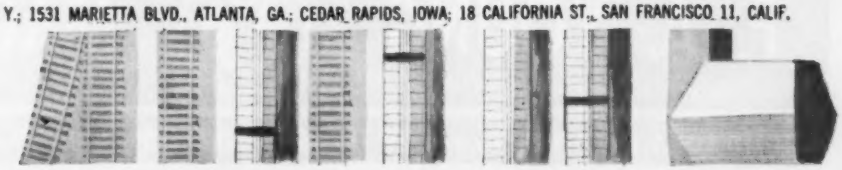

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MICRO-ELECTRIC PRECISION ALIGNING KIT

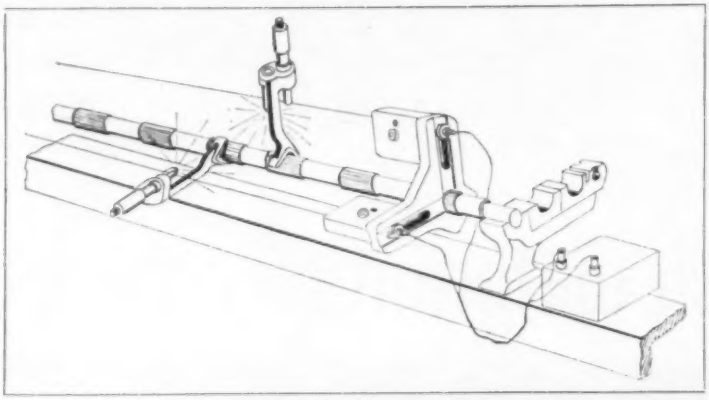
NEW • PRECISE
EASY • FAST

NO DISMANTLING • NO UNGEARING

WILL LINE AND LEVEL ROLL-BEAM STANDS AND ROLLS TO A TOLERANCE OF .005"

Use on any type Drafting.

Simply raise one saddle on each stand.



Power Pack 110 to 6 volt

Two Brackets.

Two aligning wires.

Electric Micrometer.

SIMPLE

ACCURATE

No experience necessary to operate.

About one hour to align one spinning frame.

Have smoother turning rolls.

Cut down chatter — vibration.

Make all bearings carry their share of the load.

IT'S RUGGED IN DESIGN SIMPLE TO OPERATE

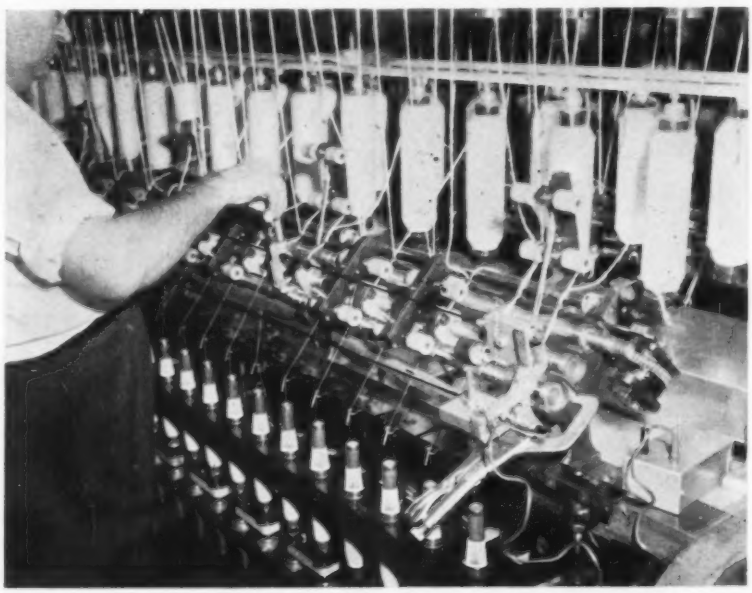


Photo shows Micro-Electric Aligning system in place with operator making a "Level Check." The line drawing above shows the Kit parts positions.

IT'S INEXPENSIVE — for Better Maintenance . . . PRECISE . . . EASY . . . FAST

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How to Dye Nylon Taffeta Without Streaks
Prevent Streaks in Package Dyeing
How Can the Uniformity of Vat Dyed Packages be Improved?
Chemical Principles for Finishing Man-Made Fibers
Camparison of Wrinkle Resistant Finishes for Cotton
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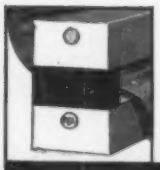

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This mile of wasted cloth could have been saved by the RCA Metal Detector!

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The new Whitin PIEDMONT* AMERICAN SYSTEM* Spinning frame provides the highest standards ever attainable in producing worsted, synthetic and blended yarns. The thoroughly proven Whitin LONG-DRAFT* two apron system and a new, efficient top arm are mounted on the chassis of the advanced type PIEDMONT chassis.

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- Scientific balloon control rings
- Independent and reverse twist arrangement
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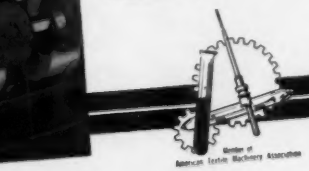
The PIEDMONT Model KW Spinning frame requires less floor space, far less cleaning and maintenance, is clean running, providing optimum spin. Investigate now and get maximum profits in your mill!



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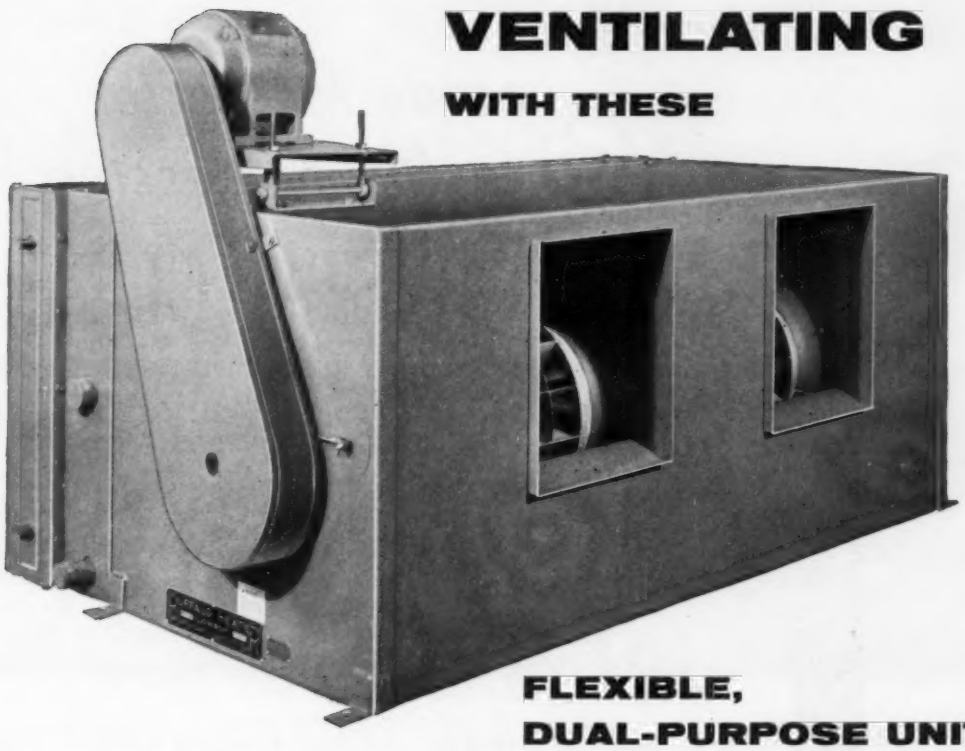

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Buffalo air handling equipment to move, heat, cool, dehumidify and clean air and other gases.

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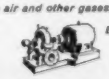

Buffalo Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.

Squier machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

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We take every possible precaution in the production, handling and storage of our caustic soda . . . right down to polish filtering just prior to shipment . . . to assure maximum purity. As a result, there's less chance of depositing troublesome metals and other contaminants on your goods in process. Impurities that aren't there just can't cause trouble!

When processing difficulties do arise, whether or not they involve the use of caustic, we're prepared to supply experienced technical assistance *in the mill* as well as in our specialist-staffed Princeton laboratories.

You'll frequently find this bit of extra help to be of great value . . . and we're glad to provide it at no added cost. May we serve you?

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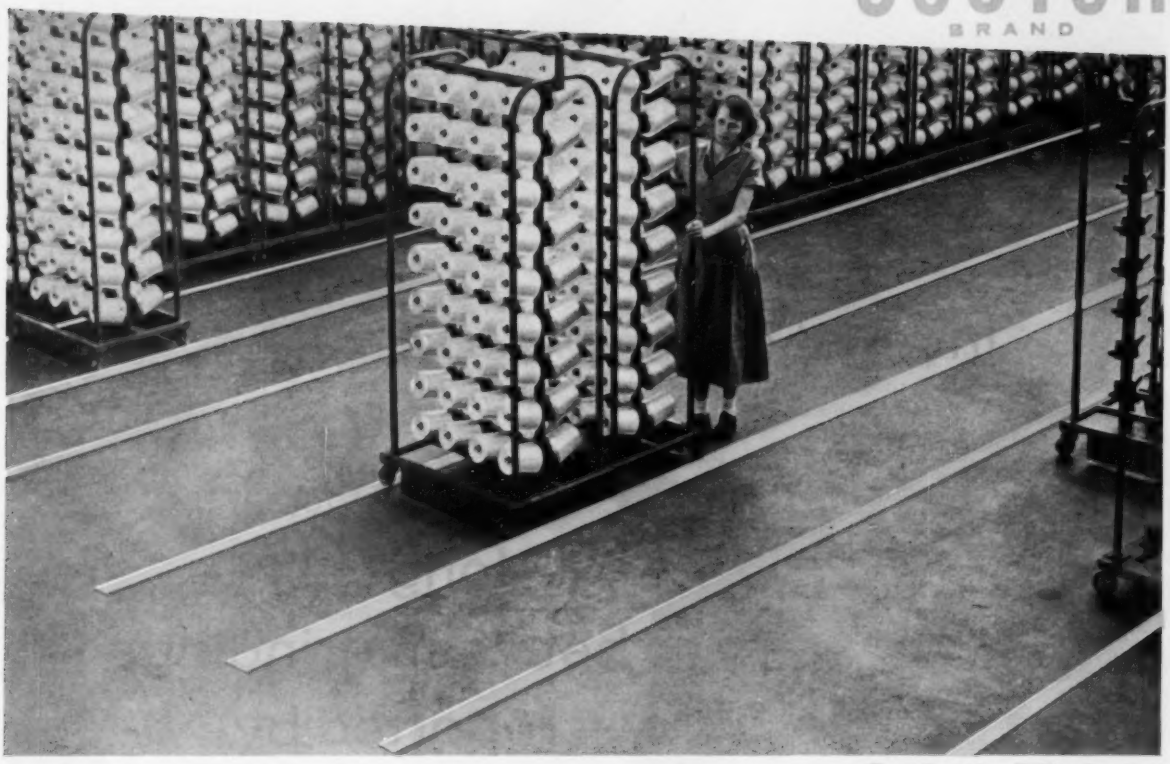
SCOTCH BRAND



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TAPE INSURES RAPID INVENTORY FLOW IN TEXTILE MILL STORAGE AREAS

See how easily and efficiently "SCOTCH" BRAND Lane Marking Tape No. 471 organizes work and storage areas. Sticks at a touch to any clean dry surface. No down time—trucks can roll over it immediately after application.

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"SCOTCH" Lane Marking Tape is easily applied to concrete, block, tile, or wooden floors by hand or with the "SCOTCH" BRAND Lane Marking Applicator M-77. Put this housekeeping helper to work in your plant.

What's your marking problem? Traffic lanes . . . No Smoking Areas . . . Inventory storage? Ask your nearest "SCOTCH" BRAND Tape Distributor, or write: 3M Company, 900 Bush Avenue, St. Paul 6, Minn.

When tape costs so little, why take less than "SCOTCH" Brand?

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– outlasts other roll covers 100% in most cases

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"How to Get Longer Life from a Rubber Covered Roll" — will be sent to you upon request.

NEWS IN BRIEF

Southeast Cotton Center Again? The Southeast will be the center of cotton production again in 15 to 20 years, according to agricultural researchers quoted in a recent speech by Sidney W. Tingen, treasurer of West Boylston Mfg. Co., Montgomery, Ala. Their prediction is based on a study which showed that within 15 or 20 years the water tables in the western cotton-producing states will be so lowered by heavy irrigation demands that it will be "a question of water for cotton or water for people."

Wool Groups to Cooperate. Representatives of the four principal groups promoting wool products met recently to coordinate their activities and take steps to prevent overlapping of their programs. The organizations represented were American Sheep Producers Council, The Wool Bureau, Woolens and Worsteds of America, and Wool Promotion Fund of the Wool Trade of Boston. Wool Bureau will handle scientific and economic research; while ASPC will take over certain Bureau activities, including the Make-It-Yourself-With-Wool Contest and the Miss Wool of America program. ASPC will no longer contribute funds to the Wool Bureau after June 30. Each group will conduct its own national advertising, publicity, sales training, and merchandising programs.

Knitting Technologists Organize. An American Section of the International Federation of Knitting Specialists has been formed under the sponsorship of the National Knitted Outerwear Association. Headquarters of the Association is in Heidelberg, Germany. Support of the National Association of Hosiery Manufacturers and the

"We want fair treatment, not sympathy"

■ I WAS ASKED a few days ago what I was going to tell the officials I have been dealing with in Washington now that Avondale's earnings and earnings of the textile industry generally have taken a turn for the better. The answer is that I am going to tell them the same thing I have been telling them.

Our case is not based on financial need, nor are we appealing for anybody's sympathy. We are not asking for any special favors, and certainly the last thing we want is a handout from our Government. We want fair and equal treatment under the law, and that is all we want.

1. We don't think it is fair and equal treatment to require us, by law, to pay a minimum wage of $1 an hour and then to permit our foreign competition to pay as little as 10 cents an hour and undersell us in our own country.

2. We don't think it is fair and equal treatment to require us to pay the government support price for our cotton and for our own government to sell similar cotton to our foreign competitor at a 25 per cent discount, and then permit our foreign competitor to take our home market purely because of his cheap cotton and cheap labor.

The average wage rate here at Avondale and in the industry generally is substantially more than $1 per hour. Our minimum wage is $1.25 per hour. So far as I am concerned, if the Government would levy a tariff on foreign textiles which would have the effect of getting their labor cost up to $1 an hour and getting their cotton cost up to the price we are required by law to pay, I would be willing to take our chances in holding a highly competitive market. I don't believe the foreigner can take this market if he has to observe the same legal ground rules that we do.

The color of the ink our bookkeepers use from day to day should have no bearing on our petition for fair treatment. The cold facts are that for the long pull, unless the labor cost of our foreign competitor is equalized by a tariff at least up to the legal minimum and unless his raw material cost is equalized by a tariff up to the U. S. legal support price, this great American industry won't be needing any ink at all.—*J. Craig Smith*, president, Avondale Mills, in the *Avondale Sun*.

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Beechcraft AIRFLEET OF THE TEXTILE INDUSTRY

Underwear Institute is also expected for the American Section. Secretary of the Section is Charles Reichman, editor of *Knitted Outerwear Times*, official publication of NKOA.

1960 Price Supports. U. S. Department of Agriculture has announced that the 1960 cotton crop will be supported at 28.97 cents for the Choice "A" program and 23.18 cents for the Choice "B" program—Middling ⅞" is the basis in each case. The 1960 crop will be the first on which nonrecourse loans are limited to $50,000 (about 350 bales). However, a cotton producer who selected the "A" program in 1959 and selects it again in 1960 can avoid the limitation by reducing his acreage 20% below the amount he planted in 1959. A producer who selected the "B" program in 1959 and selects the "A" program this year will have no limitation,

since he will be reducing his acreage more than 20%. Where the limitation is applicable, one-year recourse advance loans are available.

Canadian Women Wear More Hose. Canadian women purchased an average of 12.7 pairs of nylon stockings each during 1959, the Canadian Association of Ladies' Hosiery Manufacturers reports. This compares with 12.1 pairs for the U.S., and makes ladies' hosiery one of the few apparel items with a higher per capita consumption in Canada than in the United States.

CK Machinery Survey. Manufacturers of circular knit goods are being asked to participate in a survey of knitting machinery conducted by Morris Speizman Co., Inc. The survey, first conducted in 1957, provides data not otherwise available.

Textiles on Plateau. The winter issue of *Textile Hi-Lights*, published by American Cotton Manufacturers Institute, reports that textile industry activity in the first part of 1960 revealed "little significant change up or down from the level reached in the first part of last year." However, the Association notes that "the cycli-

Labor-Management News

Hyde Park Rejects Union. Employees at Hyde Park Mills, Covington, Tenn., voted 126 to 107 against representation by Textile

Workers Union of America, in a recent election conducted by National Labor Relations Board. The election came at a time when the Covington City Council had before it a bill to assess $1,000 dollars a day on "labor union organizers, Communists, and instigators of racial strife."

NLRB Enjoins Threads, Inc. National Labor Relations Board has ordered Threads, Inc., Gastonia, N. C., to stop "discouraging" its employees from union membership. The firm was found guilty of unfair labor practices, and ordered to rehire three workers for union activity, and to restore lost pay to them.

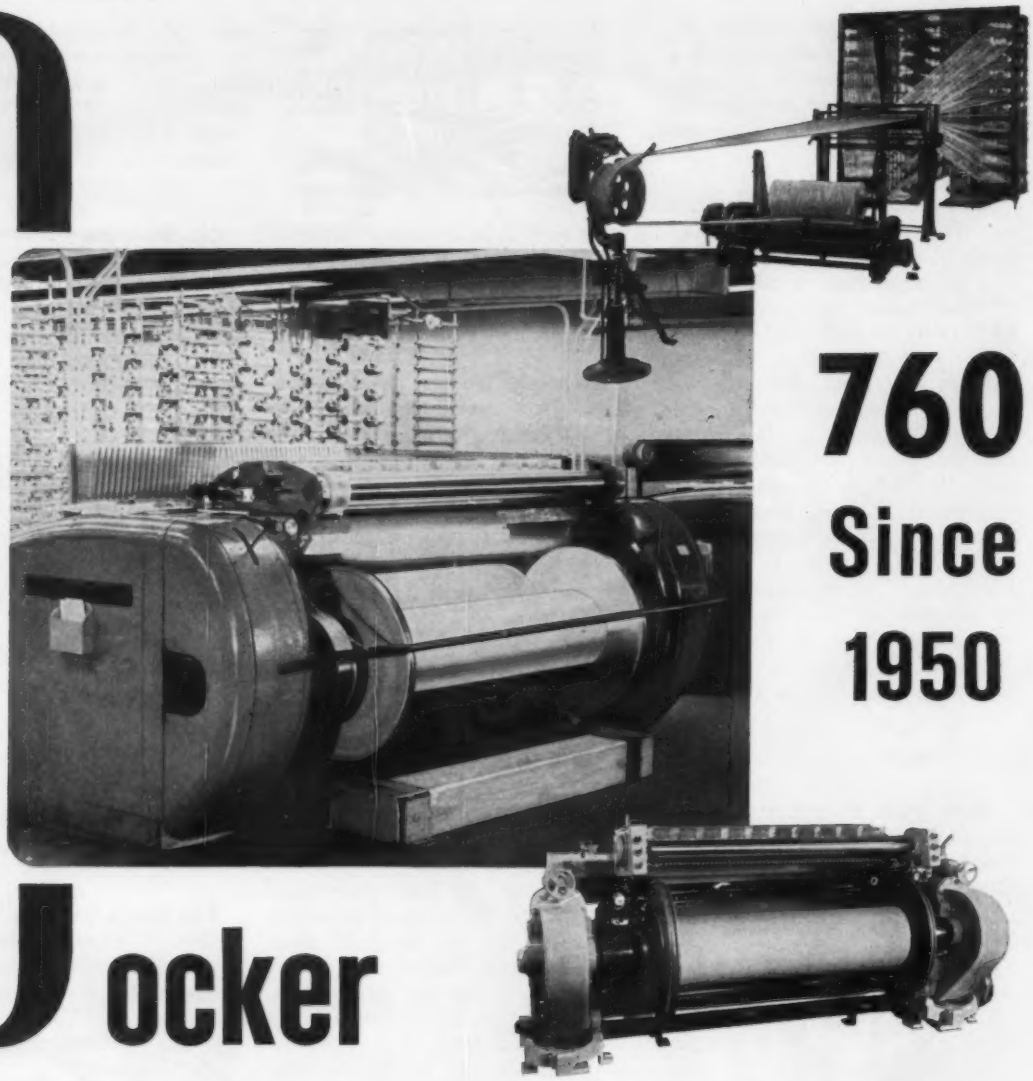
NLRB Clears Dan River. Fifth Circuit Court of Appeals has reversed the National Labor Relations Board and found that Dan River Mills did not illegally refuse to recognize or bargain with United Textile Workers of America at its Aliceville, Ala., plant. The Aliceville plant was sold to Union Underwear Co. between the time of the NLRB decision and its upsetting by the Circuit Court.

Guide to Labor Law Changes. If you need a complete guide to labor law changes resulting from passage of the Landrum-Griffin Labor Reform Act by Congress last fall, you'll be interested in a new book, "Labor Reform Law—1959," recently published by the Chamber of Commerce of the United States. In the 275-page book, Landrum-Griffin changes are set in contrasting type within the complete text of the Taft-Hartley Act. Other sections help interpret the intent of Congress, give cross references to pertinent Congressional debates, and afford a comprehensive legislative history of the new law. Copies are available at $5 each from the Chamber's Labor Relations and Legal Dept., at 1615 H St., N.W., Washington 6, D. C.

Pay Raises General. By the first of March, most southern mills—both mill groups and independents—had gotten on the band wagon

of employee raises. Amount of the pay boosts appears to average 5%, which means about 7½ to 7¾ cents an hour in most of the South.

TWUA to Ask 11¢. The wage policy committee of the Textile Workers Union of America has recommended that the union ask northern mills for an 11-cent-an-hour wage increase—10 cents across the board and 1 cent for "correction of job inequities." About 45,000 employees in 200 or so cotton and rayon mills in the North are involved.



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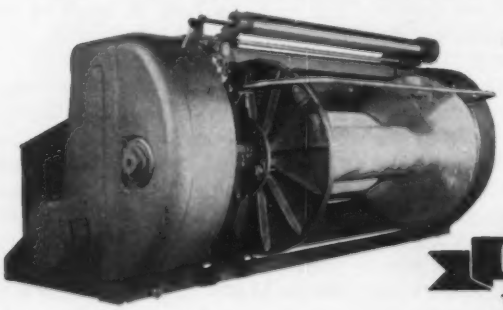
760 Since 1950

. . . has installed over 760 warpers since 1950—approximately three times the volume of the next leading make. Speed, flexibility, economy, and many valuable exclusive features account for this outstanding popularity—from finest deniers to heaviest tire cord yarns.

Accurately maintained air operated pressure produces beams of any desired density, from hardest beams for extra hours of weaving to soft beams for perfect dye penetration. Speed and braking are rheostat controlled from both ends to provide smooth operation and instant stops at all speeds. Horizontal traverse on combs prevent channeling. Other features, such as air doffing, predetermining counter clocks, and electric speed indicators are standard on most models. Heavy construction practically eliminates vibration.



Whatever your warping requirements may be, there is a Cocker Machine which will do the job faster and better. Let us give you full information on the type you need.

Visit Cocker — Spaces 615 through 620 and 629 through 634 at the ATMA Exhibition.

THE LEADER COCKER AROUND THE WORLD

Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

cal nature of the textile business is such that it has never in the past remained on a plateau for any very long period of time." It also noted that at the beginning of the year mills reportedly held 18 yd of cloth in inventory for each 100 yd on order.

Yarn Business Booms. Avondale Mills reports the establishment of a new record for total yarn sales in one month. During the first half

of January, yarn sales exceeded total sales for any previous whole month. Avondale has an unfilled order position 93% greater than at this time last year, and an inventory of yarn equal to only three days production. The company is the largest spinner of carded knitting yarns in this country.

Canadian Conference Next Year. Plans are being made to stage another Canadian Textile Conference, to be held at the Queen Elizabeth Hotel, Montreal, February 7-9, 1961. The previous Conference, held in 1958, at-

Merchandising Notes

American Enka Corp. has launched a major consumer advertising campaign to promote rayon sheer fabrics, merchandised under the designation "Enka Sheer '45.'"

Joseph Bancroft & Sons Co. has announced the addition to the Ban-Lon family of a warp knit construction of Textralized nylon, suitable for dresses, blouses, sport shirts, and similar outerwear.

Beacon Mfg. Co. is offering a line of summer-weight blankets under the name "Blendura," American Enka Corp.'s trademark for cotton-rayon blends.

Durene Association of America has begun publication of a series of trade newsletters, "Wales and Courses," dealing with significant trends of interest to users of Durene yarns and their sales outlets.

Indian Head Mills, Inc., has introduced its first textured fabric, "Ming-Lin," an all-cotton shantung-like cloth, to both the over-the-counter and cutting-up trades.

Kayser-Roth Corp. will shortly begin to market several new product lines, including women's slippers, girdles, and panty girdles.

Reeves Brothers, Inc., reports that several outdoor-furniture manufacturers are using webbing of Reevon UF-stabilized polypropylene filaments in their 1960 lines.

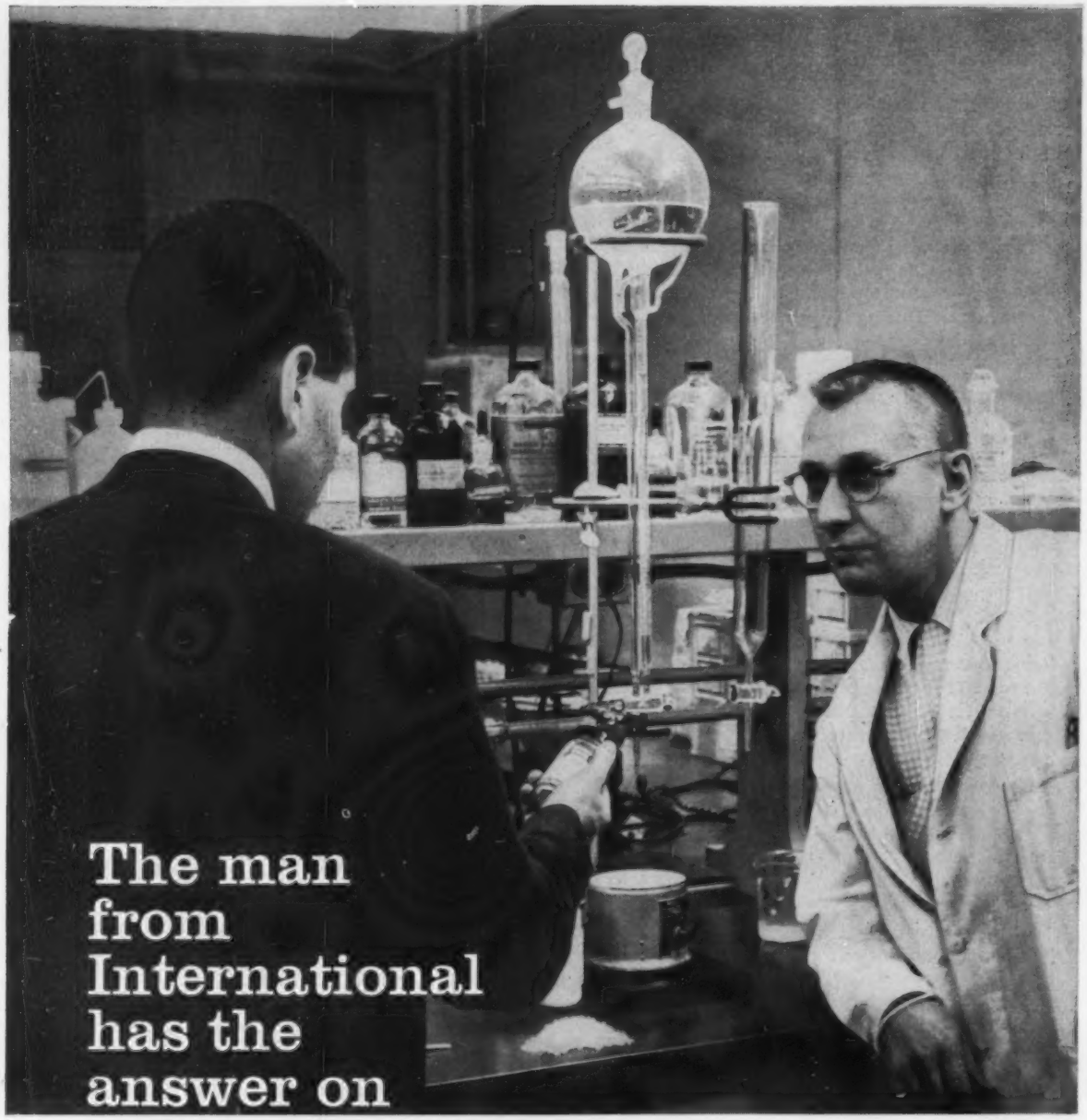
M. Lowenstein & Sons, Inc., has formed Veriset Association as a separate subsidiary to promote the use of Veriset fabrics under a licensing plan. The fabrics are blends of Verel with cotton or with other synthetic fibers.

Woolens and Worsteds of America, Inc., will replace the Wool Bureau this year in supervising the "Miss Wool of America" program. Final selection of Miss Wool will be made at San Angelo, Tex., the third week in May.

Rockford Textile Mills, Inc., will promote its Magic Fleece line of socks this year with an extensive advertising campaign, including ads in *Esquire, Playboy, True,* and *Sports Illustrated.*

Stretch Fabrics, Inc., is making a stretch terry cloth of 60% cotton, 40% textured nylon. The fabric will appear first in infants' crawlers, jumpers, and sleepwear.

These four packages were among the winners in the 1960 Folding Carton Competition: Upper left—Callaway Polka Dot Gift Set, Callaway Mills, Inc.; upper right—Mojud Zip-Open Hosiery Folders, Kayser-Roth Hosiery Co., Inc.; lower left—lingerie and ladies' apparel, Van Raalte Co., Inc.; lower right—Hanes Layette Gifts, P. H. Hanes Knitting Co. All entries in the competition will be on public display April 12-14 at the New York Coliseum.



The man from International has the answer on salt selection

The International Salt Company sales engineer is helping his customer choose the right salt and a matching salt-dissolving system for a new plant. His advice is sure to be impartial because International supplies Sterling Salt in over 80 different types. In this full line, there is a type and size of salt for every industrial need. The man from International can also suggest the most efficient and economical method of using, storing and handling the salt he recommends. His experience, knowledge and on-the-spot service are the vital extras that make Sterling Salt the first choice of so many salt-using companies. To put this technical knowledge at your disposal—contact International Salt Company headquarters, Clarks Summit, Pennsylvania, or the office nearest you: Boston, Buffalo, Charlotte, Chicago, Cincinnati, Detroit, Newark, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis.

INTERNATIONAL STERLING SALT SALT COMPANY

"A STEP AHEAD IN SALT TECHNOLOGY"

tracted 1,400 registrants from all segments of the Canadian and foreign textile industries.

Hosiery Sales Up. Hosiery sales showed substantial gains for 1959. Final figures issued by the National Association of Hosiery Manufacturers indicate an in-

crease in all categories of about 6½ million dozen pairs over 1958, and 2½ million dozens above the average of the last ten years. Total shipments in 1959 were 156,594,292 dozen pairs, compared with 150,017,286 during the previous year.

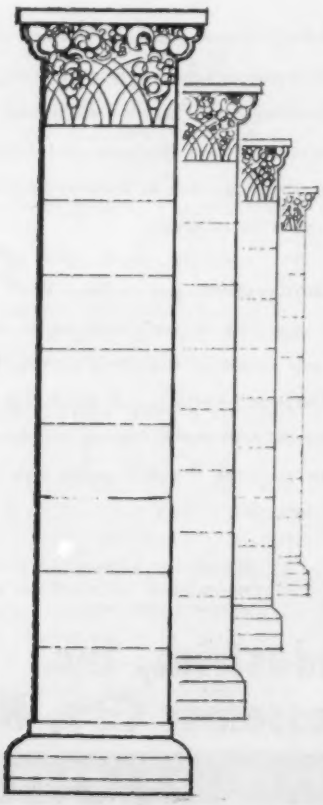
Methods Improvement Contest. The Industrial Management Society is now accepting entries in its Ninth Annual Methods Im-

provement Contest to be held in conjunction with its 24th Annual Industrial Engineering Clinic, Oct. 12-14, at the Conrad Hilton Hotel, Chicago. Trophies will be awarded in five classifications for 16-mm films describing "before and after" phases of methods improvements and industrial engineering training projects. Details are available from IMS at 330 S. Wells St., Chicago 6, Ill.

Textile Short Courses. A short course program for personnel in textiles and related industries will be offered again this summer by Clemson College School of Textiles. Six three-week courses will be offered. Courses in Yarn Manufacturing, Supervisor Development, and Cotton Classing will start on June 13; classes in Fabric Development and Motion and Time Study begin July 11; and a Quality Control course starts on August 15. For details, write to Gaston Gage, dean of the School of Textiles, at Clemson, S. C.

Long-Staple Support Prices. Price support for 1960-crop extra long staple cotton will average 53.04 cents per pound, net weight, according to the U. S. Department of Agriculture. This reflects 65% of the February parity price of 81.60 cents per pound.

Glass Fiber Use Booms. Textile usage of glass fiber rose from 8.2 million pounds in 1949 to more than 147 million pounds in 1959, according to a recent report in *Chemical and Engineering News*. Despite recent expansions of productive capacity, manufacturers of glass fiber are unable to keep up with demand. The shortage is expected by some experts to last until 1961, when new facilities will be in production.

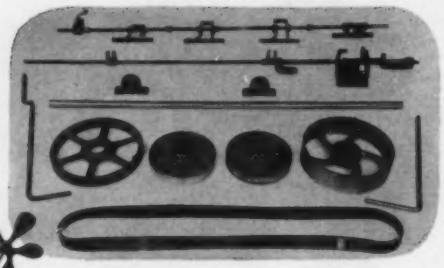


PENSION and PROFIT-SHARING PLANS

TRUST COMPANY OF GEORGIA ATLANTA

Serving businesses large and small since 1891

Ideal has eliminated these enemies of quality and long service . . .



Virtually Vibrationless

(even at super speeds)

Ideal Drafting* Gives Longer Service

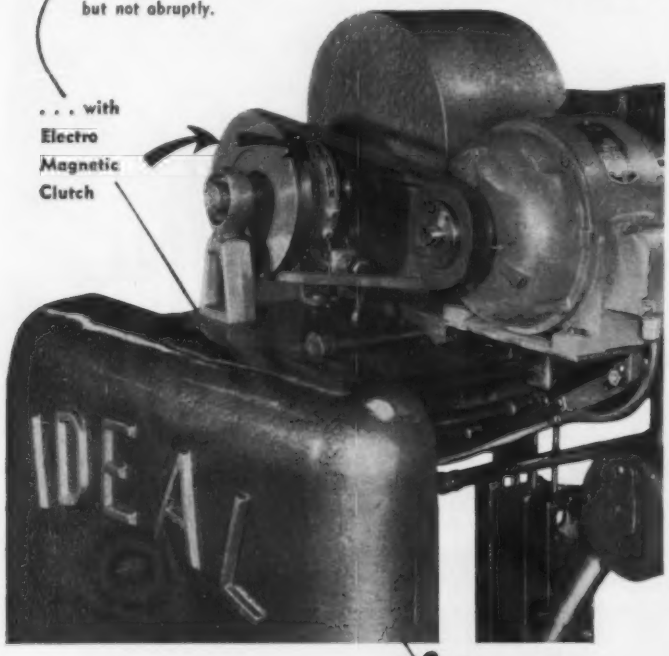
New Ideal Feathertouch Drafting runs far more smoothly at 400 feet per minute than pre-Ideal drafting did at 120 feet. Here are some of the features which Ideal engineered to produce this astonishing result.

Ideal Electro-Magnetic Clutch This clutch eliminates the pulleys, belts, countershafting, rockershafts, etc. shown in the picture above. These are all enemies of smooth operation and long frame life.

Smooth Instant Stops The positive braking action of the clutch assures smooth instant stops at all speeds.

Smooth Starting The clutch, operating through a rheostat, permits the frame to be started slowly and gather speed quickly, but not abruptly.

. . . with Electro Magnetic Clutch



Ball Bearings All turning parts are equipped with permanently sealed and lubricated ball bearings. Ideal patented ball bearing spacing sections keep the rolls perfectly aligned and synchronized at all times. Ideal coiler tube assemblies are suspended above the spectacle by heavy duty ball bearings and turn freely at highest speeds.

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THE ORIGINATORS OF HIGH SPEED DRAWING

RECENT TECHNICAL AND COMMERCIAL DEVELOPMENTS

by J. B. Goldberg
Consultant to the Textile and Allied Industries

Exclusive

FIBERS AND YARNS

Japanese High-Tenacity Acetylated Viscose. The Toho Rayon Co., Ltd., is producing commercial quantities of a new high-tenacity acetylated viscose fiber under the name of "Alon." This staple is made by the acetylation of special high-strength rayon in the fibrous state, yielding a product with many of the desirable characteristics of cellulose acetate but with greatly improved dry and wet tenacities and the ability to withstand hot ironing without sticking or melting.

Sparkling Nylon. The Chemstrand Corp. is marketing a 15-denier nylon yarn with a modified cross-section to give increased luster and intended primarily for hosiery. (A similar yarn, Type 90, was introduced by the Du Pont Co. several months ago.)

Bulky Silk Yarn. A Japanese firm is now offering a bulky silk yarn under the trade-name of "KU" silk for export. Process patent has been applied for.

Polypropylene Staple. Further details have been released on the Montecatini polypropylene fiber, "Merkalon," featuring low specific gravity (about 0.91), high tenacity and abrasion resistance, high elasticity and resilience, resistance to acids, alkalis, mould, and micro-organisms. This fiber is priced at 60¢ per lb in Italy with limited quantities being exported to the United States at about 90¢ per lb for evaluation purposes.

Improving Hand of Polyester Fabrics. A British patent issued to the Swiss Heberlein Co. covers means for imparting a silky, soft hand to fabrics of polyester fibers without too great a reduction in strength. The treatment described involves use of an aqueous bath containing an alkali metal hydroxide along with 10-30% of an organic swelling agent or solvent.

Another Nylon 4. It is rumored that the Minnesota Mining & Mfg. Co. is evaluating a nylon 4 fiber, similar to that disclosed some time ago by the General Aniline & Film Corp., also in the preliminary investigation stage.

American Viscose Corp. Cellulosics. Another A. V. C. new fiber reported to be under evaluation is "RD-101," said to have been developed for paper-making as well as to give linen-like hand in apparel fabrics. (This is apparently the "Avlin" fiber reported last month.) "Avistrap" has been identified as a novel product from the same producer to be offered as a replacement for metal straps in packaging. A range of acetate yarns will be offered with Sanitize bacteriostat incorporated to inhibit bacteria growth and odor development.

FABRICS AND FINISHES

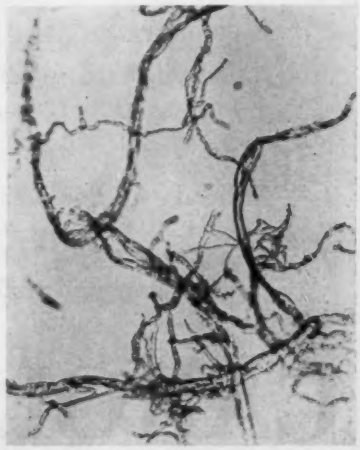
Warp Knit Fabric. J. Bancroft & Sons Co. has developed warp-knit Ban-Lon fabrics of crimped Textralized nylon yarns. These fabrics are said to be suitable for dresses, blouses, and sports shirts.

Stainproofing Silks. A Japanese company is producing a stain-resistant silk fabric by a process involving the application of a paste of silicone resin in polyvinyl alcohol. The resin is prepared in a bath containing a zirconium-derivative waterproofing liquid with the synthetic paste held at 30-35 C and the cloth passed through the bath, dried, and tentered. It is then baked with infrared heaters for about five minutes at 120 C.

Synthetic Paper Shirts. A West Germany firm has developed a synthetic fiber paper material suitable for men's shirts and women's blouses. The "paper cloth" can be colored or printed and is claimed to be strong, dirt-repellent, and moisture-resistant.

Knitted Suede-Type Nylon Fabric. Produced under licensing agreement with the Swiss inventors, "Islon," a knitted suede-type nylon fabric, is being offered by the Iselin-Jefferson Co., Inc. Wide acceptance is seen in the above field, with potential markets anticipated for such apparel items as men's sport shirts, sport coats, swim trunks, and women's robes, dresses, snow suits, and ski pants. The fabric is high priced and is presently confined to items in the luxury brackets.

Continued on page 81



Fibrous vinyl and styrene resins are now available in developmental quantities from Union Carbide Plastics Co., for testing as binders for nonwoven fabrics. Fiber lengths vary from very short to a maximum of 3/16". The fibers are very irregular in shape, with diameters ranging from 2 to 200 microns. The fibrous resin is shown above at a magnification of about 105 X. Fine fibrils can be seen extending from main fiber bundles.

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MACHINERY AND PROCESSES

English Fiber Processing Developments. Among developments reported by the British Shirley Institute are a new cotton opener which is said to eliminate the need for the hopper feeder, saving space. The weighting of condenser bobbins at the condenser card permits doubling of the amount of roving wound on each bobbin with no adverse effects on spinning and yarn quality. Also reported was the finding that the self-brushing of sized but undried warp sheets of spun synthetic yarns over an arrangement of rollers reduces hairiness, lint at the loom, and warp breaks.

Carpet Printer. Details of the British Tufting Machinery Ltd. revolutionary carpet process have now been disclosed. The pattern is engraved across rollers up to 18 feet in width in high relief, then covered with a thin layer of foamed plastic material which acts as a reservoir for printing liquor. Printing speeds of up to 15 yards per minute are attained and multi-color effects are achieved through use of two or more units in sequence. Cost of printing is estimated to be close to that of piece dyeing. (See details on page 94.)

Improved Yarn Quality. A new-type Pneumafil pneumatic broken end collecting system for high speed spinning frames provides high efficiency, and increased air volume gives better cleaning in the drafting zone.

Fleecy-Fabric Warp-Knitter. A new machine developed in Czechoslovakia for producing a form of pile or fleecy fabric utilizes a carded lap of staple fiber with specially designed tube needles operating in a manner similar to the compound needle. Resembling a Raschel machine in arrangement of yarn tensions and fabric take-up, operating speed is between 300-500 courses per minute over a knitting width of 1.96 yd.

Improved Fiber Preparation. A new Turbo "TP" machine for synthetic-fiber producers combines operations of conventional draw frames, conditioning machines, and crimpers. Undrawn thermoplastic fibers in tow form are drawn, stabilized, and crimped in a single operation ready for cutting. The Warner & Swasey "Servo-Drafter" intersecting draw frame, to be introduced at the Atlantic City exhibition, is said to produce high quality yarn in fewer operations by maintaining yard-for-yard sliver accurate to within 1% (details on page 205).

TEST METHODS

Electronic Cotton Fiber Measurement. Dr. K. Hertel, University of Tennessee, has developed an electronic machine for combing and measuring cotton fibers. The device can handle more than 100 samples an hour and one operator can do the work of three skilled workers who comb the fibers by hand.

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EXECUTIVE VIEWS

Prepared by a man who is closely identified with the textile industry.

Cotton's sorry plight

FOR A GOOD many years, the cotton farmer has literally been a ward of the Federal Government, and there is no present indication that he will ever again be really free to farm as he pleases. The government has too firmly assumed responsibility for the cotton farmer's welfare to be able to withdraw its support of the whole cotton farming structure.

Practically anybody who knows anything about cotton knows that this whole farm program has been a horrible mess, and that it has not done what it was supposed to do, and has done a great many things of dubious value, or actual harm, that it was not supposed to do. The Government program has made multimillionaires out of the big cotton planters in the West without appreciably benefiting the bulk of the small cotton growers in the Southeast, who are politically potent, even if economically unimportant.

One of the most astonishing things about cotton during the past few years has been the fantastic increase in the production per acre. For a hundred years or more, the shining goal of every good cotton planter was "a bale to the acre." Practically nobody ever got a bale of cotton on an acre of land except in small patches of extraordinarily rich river-bottom land, and for generations the national average was around 150 pounds of lint per acre.

We used to plant around 40 million acres of land to get around 13 or 14 million bales of cotton. Now, we raise such a crop on considerably less than half the land it used to take. There are several reasons for this, but probably the only one that really matters is the Government's cotton program, which pegs the price at an unreasonably high point and reduces the acreage allotment to an unreasonably low one. The farmer responds nobly by raising more cotton per acre, since his allocation is in acreage and not in bales.

THE DEVELOPMENT of cotton growing in California has been almost incredible, and the pegged government prices have probably had more to do with this than anything else, because cotton is not a perishable crop and people have turned from truck gardening and fruit raising to cotton, as a practically riskless type of business.

"The farmers, like the textile mills, are completely disorganized as far as any general control over production is concerned . . ."

The cotton farms in California are fabulous things, and are really industries rather than farms. These cotton growing enterprises are very heavily mechanized, and this marks the great line of cleavage between the big cotton farmers and the little fellow that these wild and wooly Government schemes were designed to help. The little southeastern cotton farmer usually doesn't have enough land to justify mechanized farming and he hasn't enough money to buy the machinery if he did plant enough acreage. Furthermore, the terrain in the Southeast is not as well suited to mechanized farming as the flat western country.

These western cotton farms are irrigated, and cotton growing can therefore be controlled with nicety. The machinery alone on one large California cotton farm is often worth more than the entire value of a hundred small cotton farms in the Southeast. The little southeastern farmer is still struggling to get his "bale to the acre," and having a hard time of it; while the California farmer has to make two bales to the acre to break even. A fairly good farmer will make three bales; a very good farmer will expect to get four bales; and some farmers will

make five bales to the acre.

Some of this cotton is so lush that it would be practically impossible to pick it by hand, since it is a veritable jungle of vegetable growth. One California farmer reported in 1958 raising over 84,000 bales of cotton on 20,000 acres of land. Taking the usual estimate of two bales to the acre as the break-even point, this farmer probably made around five million dollars clear on his 1958 operations.

If the Government ever withdrew its support of the cotton price, these big operators who could sell cotton at a reasonable profit at perhaps 10 cents a pound less than the pegged price would probably soon have the entire American cotton crop moved to the western states where these big acreage productions are possible, and this would create an economic revolution in the Southeast.

Of course, if the Government had never meddled with the cotton crop, and had let ordinary economic forces govern the growing and marketing of cotton, the same thing would probably have happened ultimately, but the transition would have been gradual and the adjustments probably within the capacity of the country to absorb. Now, the Government has an economic tiger by the tail and can't turn it loose.

THE ARTIFICIALLY rigged prices of American cotton have tremendously stimulated cotton growing all over the rest of the world, and we are trying to meet this condition by subsidizing the sale of American cotton abroad to the tune of eight cents a pound. Until the American taxpayer stages a first-class rebellion against footing the bill for this subsidy, it will certainly continue, and probably be increased.

It has had some interesting results, and one of these which has recently come to our attention is the shipment of picker laps into the United States from Mexico and Canada as "processed cotton," which is not subject to quota and which carries a relatively low import duty. Some people in Texas were telling that tremendous quantities of Mexican cotton are being used by American mills, which get it in the form of picker laps. Some senators from cotton raising states are irked by this enterprising activity, and there is a good likelihood that this practice will be stopped during the present session of Congress, but it shows how quickly someone will find a loophole in all of these artificial schemes to subvert the laws of economics.

The cotton farmers naturally like pegged prices at a high level, and while they do not like to see their acreages cut, they can apply themselves with a will to getting more cotton per acre, and this is progressively freezing out the small farmers who lack the capacity for modern farming methods. Diversified industry, which is setting up plants scattered all over the Southeast, will ultimately provide jobs for these people who ought to get out of farming, but so long as cotton is pegged at a price which encourages a farmer - turned - factory-workman to keep on farming as a part-time proposition, there will continue to be a lot of these economically unjustifiable cotton farms adding their product to the surplus.

THE PLIGHT of the farmer has been largely brought about by the same habit which has plagued the textile industry. He overproduces. When the farmer's prices go down, he is inclined to plant a little bit more land, if he has it, and try to bring his income back up with more produce. The textile mill does the same thing. When there is a restricted market, instead of restricting production to fit the market, a great many textile producers will try to run more hours to get lower unit costs.

The farmers, like the textile mills, are completely disorganized as far as any general control over production is concerned. The Government is now furnishing this control after a fashion, and if some of these big cotton planters can have their way, the textile industry will soon be in the same boat with them. Some of these big farmers have seriously proposed that in order to stimulate cotton growing and increase employment in the textile industry, and bring good profits to that industry, the Government should subsidize sales of cloth and yarn abroad instead of just subsidizing the sale of cotton.

To any person who firmly believes in subsidies, this is a beguiling thought, because it would tremendously improve the position of the textile industry, and wouldn't hurt anybody except the American taxpayer, who seems to be fair game for crazy schemes like this, and who makes remarkably little objection to being looted for the benefit of any group of people strong enough to take what they want.

What some of these cotton farmers are proposing is a sort of Brannan Plan for the textile industry, under which the mills would do a rousing foreign business, with the Government making up their deficits. As far as we know, this proposition has not yet reached the point of being presented to Congress in the form of a bill, but it is being discussed by cotton growers in the western states.

Last year the Government introduced another gimmick in the cotton control plan by allowing planters an additional acreage to produce cotton which would have such a low loan value that it was, in effect, free cotton. This was known as Plan "B." This arrangement has apparently been greeted with great enthusiasm by the big farmers of the western states, who have found that this free cotton sells for just as much as any other kind of cotton and adds handsomely to their total profits. Meanwhile, the price is kept up by the Government subsidy scheme and the parity prices of the Government loan program.

An interesting sidelight on this Plan "B" cotton is the fact that a number of large cotton buyers have been contracting for this cotton with the understanding that it is to be ginned to their specifications and not put through the saw-type lint cleaners. We have had a good deal to say about these lint cleaners from time to time, and last spring we discussed this

very proposition of mills buying cotton to be ginned as it should be from the spinner's standpoint. The ginners know as well as anybody that all of this excessive lint cleaning injures the cotton, but since the loan value of cotton is dependent upon its grade and appearance, it practically has to be put through all of these damaging processes to make it look good to the cotton classer, who knows how to grade cotton for the loan better than he does for the spinning mill.

WITH MECHANIZED farming, there is never going to be any really good cotton again, judged by past standards. The old-fashioned cotton was hand raised and hand picked, with loving attention to its welfare. In a well tended cotton field, every bit of grass was hoed out by hand, and when the cotton was picked, it was picked as it opened so that the mature and immature lots were kept separate. Machine-picked cotton has the mature and immature fibers all mixed up together, and the cotton as it is ginned contains grass, twigs, and all sorts of rubbish which the cleaning machinery at the gin has to attempt to remove. What it doesn't take out, the lint cleaners grind up into a powdery, peppery trash that practically defies removal.

The mills that are buying this Plan "B" cotton and having it ginned without lint cleaners can do their own cleaning without grinding up the foreign matter, and produce better fabrics than can be made from cotton that looks a lot cleaner, but actually is much dirtier, with the kind of dirt that tends to stay in the cotton all the way through the mill. If the experience of these mills running this specially ginned cotton shows that they benefit as much as we believe they will, this may cause a revolution in cotton ginning.

A new dryer has been developed for gins which it is claimed will eliminate overheating and overdrying, and this is certainly good news to spinners. If we can just get rid of the lint cleaners now, that would be even better news.

FUTURE EVENTS

Date		Event	Location
April	1-2	Delta Kappa Phi textile fraternity annual convention	Roger Smith Hotel Washington, D. C.
	2-3	Piedmont Section AATCC	R. E. Lee Hotel Winston-Salem, N. C.
	7-9	American Cotton Manufacturers Institute annual meeting	Americana Hotel Bal Harbour, Fla.
	16	Southeastern Section AATCC	Callaway Gardens Pine Mountain, Ga.
	20-22	Alabama Textile Manufacturers Association annual convention	The Buena Vista Biloxi, Miss.
	21-23	National Association of Hosiery Manufacturers annual convention and Hosiery Industry Conference	Americana Hotel Bal Harbour, Fla.
	22	Delaware Valley Section AATCC (ladies' night)	Northeast Shrine Rockledge, Pa.
	22	Metropolitan Section AATCC	Kohler's Swiss Chalet Rochelle Park, N. J.
	22	Textile Institute annual meeting	Midland Hotel Manchester, England
	23	Textile Operating Executives of Georgia carding-spinning discussion	Ga. Tech Atlanta, Ga.
	26-27	Institute of Textile Technology Technical Advisory Committee and Board of Directors.	I.T.T. Charlottesville, Va.
	28-30	Phi Psi national convention	Hotel Roosevelt New York City
	29	Underwear Institute annual meeting	Hotel Biltmore New York City
	30	Eastern Carolina Div. Southern Textile Association	N. C. State College Raleigh, N. C.
	30	Mid-West Section AATCC	Schroeder Hotel Milwaukee, Wis.
May	4-5	ACMI Fiber Testing Laboratory open house	The Clemson House Clemson, S. C.
	5	National Knitted Outerwear Association annual banquet	Waldorf-Astoria New York City
	5-6	AIEE conference on electrical applications in textiles	Heart of Atlanta Motel Atlanta, Ga.
	6	Western New England Section AATCC (ladies' night)	Rapp's Paradise Inn Ansonia, Conn.
	7	Alabama Textile Operating Executives' slashing and weaving discussion, 9:30 A.M.	Thach Auditorium Auburn, Ala.
	11-14	Carolina Yarn Association	The Carolina Pinehurst, N. C.
	13	Northern New England Section AATCC	L. T. I. Lowell, Mass.
	13-14	South Central Section AATCC outing	Riverside Hotel Gatlinburg, Tenn.
	17-18	Conference on fiber blends	QM R. & E. Command Natick, Mass.
	19-21	Georgia Textile Manufacturers Association annual meeting	The Diplomat Hollywood, Fla.
	23-27	American Textile Machinery Exhibition	The Auditorium Atlantic City, N. J.
	25-27	Narrow Fabrics Institute, Inc.	Northfield, N. J.
	25-28	Tufted Textile Manufacturers Association annual convention	The Fountainebleau Miami Beach, Fla.
	26-28	South Carolina Textile Manufacturers Association annual convention	The Cloister Sea Island, Ga.
May	30-June 3	Textile Institute annual conference—fiber science	London, England
May	31-June 2	Cotton Research Clinic	Grove Park Inn Asheville, N. C.
June	23-25	Southern Textile Association annual meeting	Grove Park Inn Asheville, N. C.
Sept.	8-9	Combed Yarn Spinners Association	The Cloister Sea Island, Ga.
	27-28	Chemical Finishing Conference sponsored by National Cotton Council	Statler Hotel Washington, D. C.
Oct.	3-7	Southern Textile Exposition	Textile Hall Greenville, S. C.
	5-8	Carded Yarn Association annual meeting	Grove Park Inn Asheville, N. C.
	6-8	AATCC national convention	Sheraton Hotel Philadelphia, Pa.

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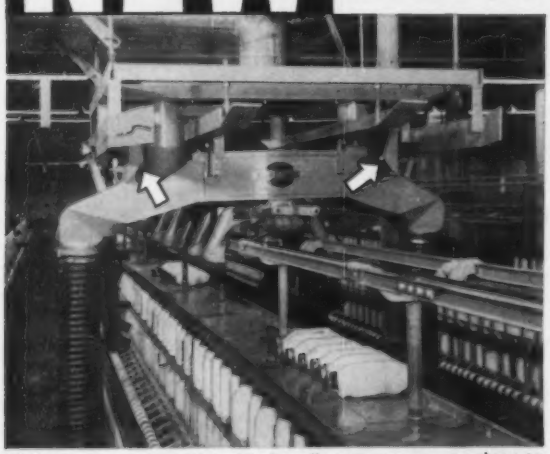

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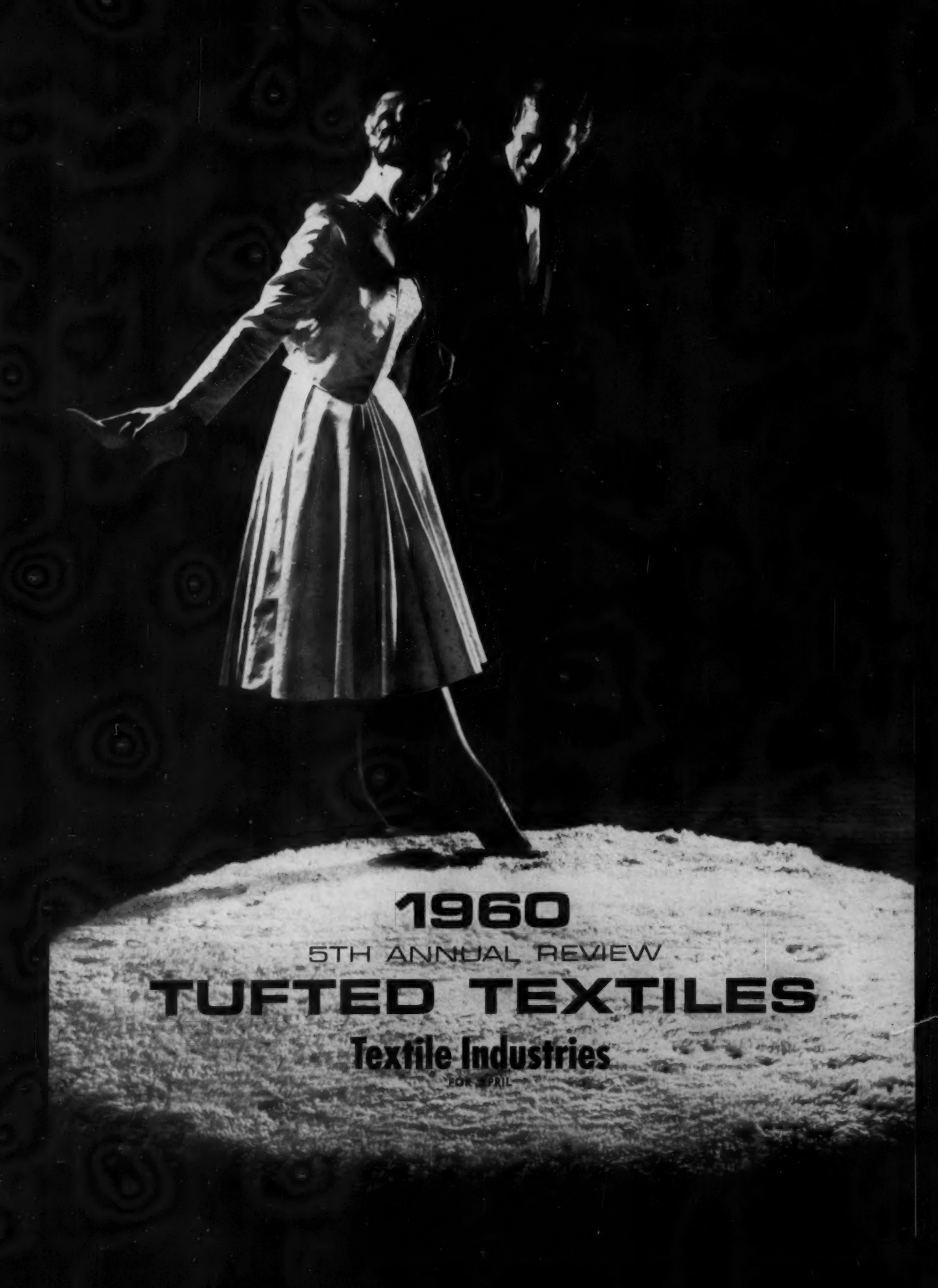

1960
5TH ANNUAL REVIEW
TUFTED TEXTILES
Textile Industries
FOR APRIL

All burling is done with extreme care so as to retain proper pile height and density. Operative to left controls pile height from mending gun (note switch in left hand) to keep it compatible with texture. Linoleum covers floor areas likely to cause pile damage.

THE 501 STORY

Mill tests show that nylon 501 tufts well, holds its beauty under "impossible" wear.

Staff prepared
Exclusive

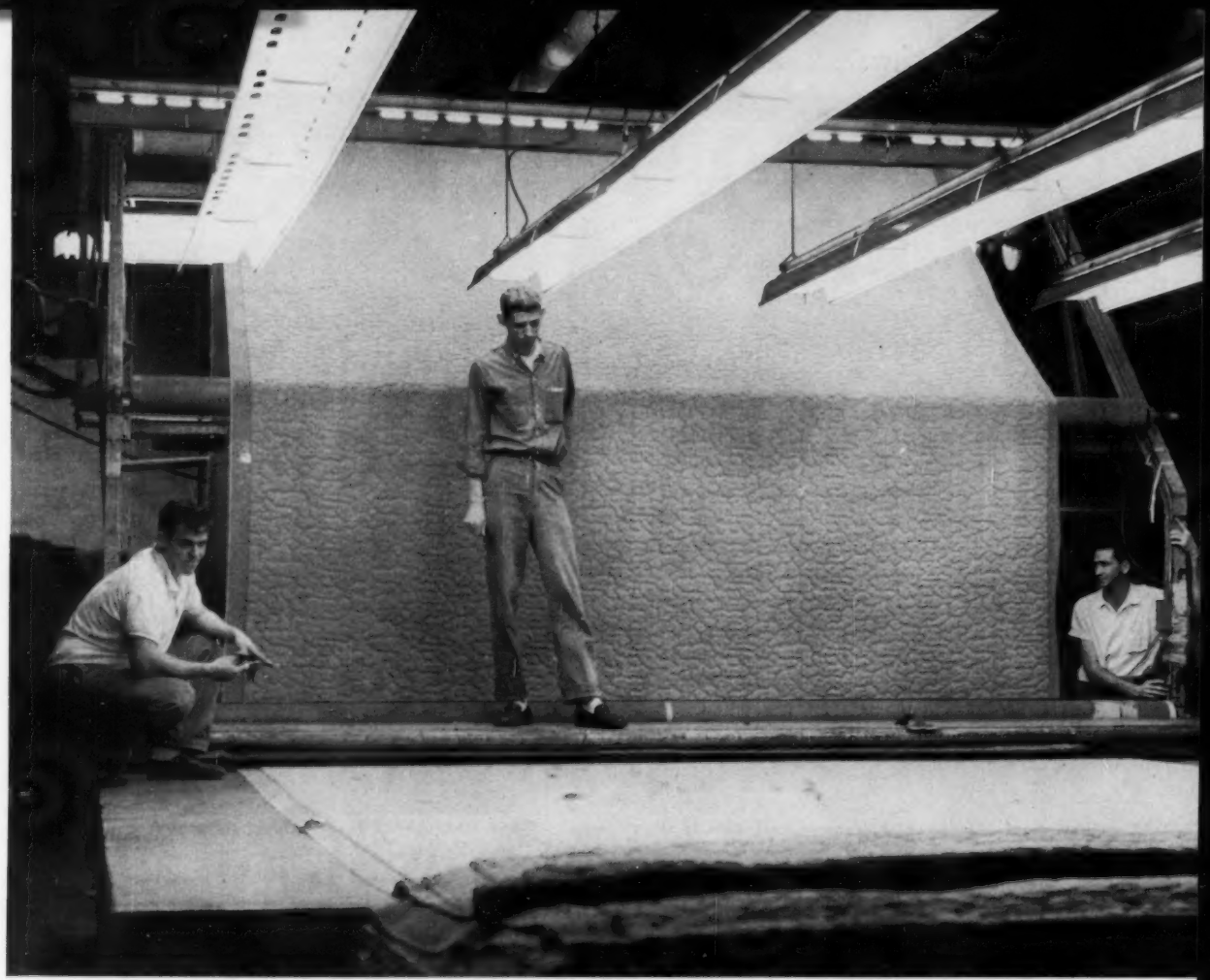
FOR YEARS the sales staff of E. T. Barwick Mills, Inc., considered the nylon that went into 18 of their 21 "quality" carpet styles the "natural" carpet fiber. The 6" to 8" fiber, spun on worsted systems, went into carpets that sold from $7.95 to $24.95 per square yard. Then along came nylon 501, a crimped filament yarn.

In the beginning, the 501 yarn was produced in limited quantities and needed thorough mill tests to determine just where it would stand among other carpet fibers. E. T. Barwick Mills, Inc., went into a working agreement with Du Pont to give 501 its shakedown cruise through the tufting industry. Other carpet manufacturers got busy with it too, some of them checking it out on their weaving systems.

Carpets from the new fiber have all the performance features of nylon carpet plus a few advantages the spun yarns could not give—added cover, hand, smoothness, and recovery, to name a few.

Cover. The filament yarn is crimped at the spinnerette and the resulting bulk is 50 per cent greater than that obtained from woolen yarns, and 35 per cent greater than that of spun nylon. That not only offers more coverage than was hitherto possible from a given weight of yarn; it adds its proportion of springiness as well.

Du Pont's engineers designed



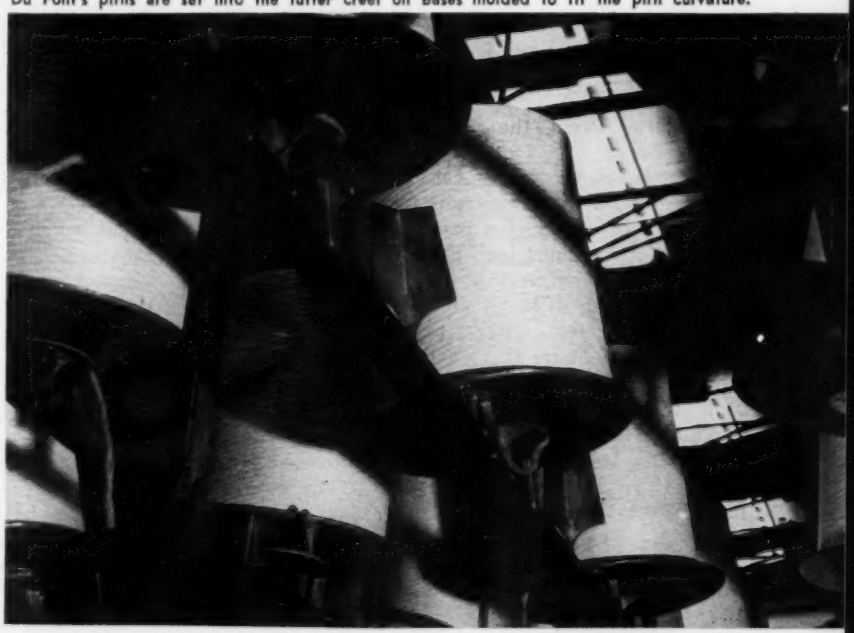
Aside from the usual defects (ends out, dye streaks, spots, etc.) they must look for, the inspectors must look for scuffing, a symptom of filament breakage, on the nylon 501. The operative on the right inspects the texture of carpet back from that position.

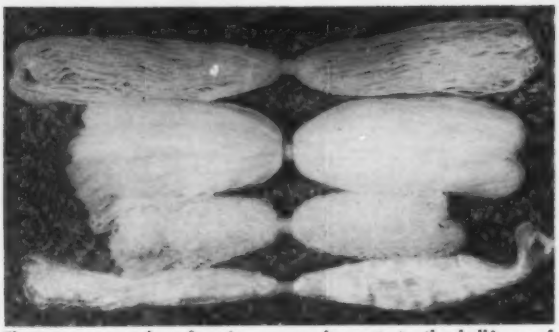
the fiber to have a tri-lobular cross section and thus they developed a measure of opaqueness not enjoyed in the fibers of circular or near-circular cross section. Opaqueness is desirable in that it permits a carpet to retain its brilliance while hiding quantities of soil—a carpet will sometimes hold twice its weight in dirt.

Hand. The property that adds springiness adds also a distinct feeling of substance to the carpet. There is a sensation of thickness, of ruggedness, whenever the carpet is stepped on, squeezed, or folded. This added touch is an outgrowth of the countless whorls and loops locked into the individual filaments.

Wear Life. Nylon's ability to withstand abrasion needs little mention, and the new textured yarn is no exception. Generally

Du Pont's pirns are set into the tufter creel on bases molded to fit the pirn curvature.





Three-ounce samples of various yarns demonstrate the bulkiness of 501. Bottom to top: filament nylon; spun nylon; nylon 501; wool.

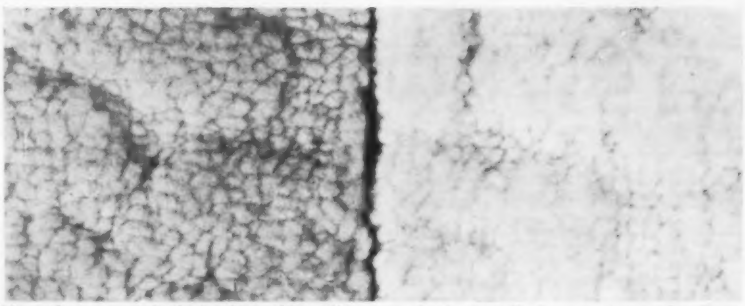
Interiors of dyebecks for the 501 are wiped with a nylon stocking, and the rough spots so found are smoothed with crocus cloth.

Close-up of 501 texture. A bleached back adds to the whiteness.

Tweed effect gained by space dyeing the textured filament yarn.

speaking, it will offer from three to five times as much wear as will wool.

But the picture is even brighter than the new yarn's very generous wear life suggests, for it is free of the pilling that is associated with spun nylon. And this property is present and noticeable even after the carpet shows signs of wear!



How the carpet looked after 2½ million people had walked over it at the Texas State Fair and how it looked after it had been cleaned with ordinary home methods.

Recovery. Press the textured yarn under a sofa foot for days and it will recover 95 per cent of its height after the pressure is removed—wool will spring back 89 per cent, other fibers less. Expose those fibers to extreme pressures and the differences begin showing immediately, for after being pressed for 24 hours at 10,000 psi the textured filaments sprang back to 92 per cent of their original heights. Wool responded to the same tests with 31 per cent recovery; Acrilan with 32; rayon 10; and acetate 10.

Tips on Processing 501. Since it is a filament yarn, it is subject to picking or pulling and the consequent filament damage this brings on. Thus, all surfaces over which it is passed must be kept polished to an extent not before necessary with spun yarns. Barwick management requires that:

All dye beck interiors in which 501 is processed be examined periodically by wiping them with a nylon stocking and smoothing with crocus cloth all roughness so disclosed—

The concrete floors in the region of the inspection perches behind the tufting machines be covered with linoleum—

All burling to be made with extreme care to prevent inserting ends under wrong tension or wrong height—

Pirns be creeled on bases molded to conform to the curvature of the pirns.

Finishes Applied. Sometimes the top layer of the twin jute backings is bleached to add whiteness to the whole carpet appearance, although the pile density of the nylon 501 is too great for brown jute to grin through. When back bleaching is done the yarn is left in its natural white state.

Any color can be supplied. The metallized dyes Barwick uses are

Continued on page 113

As the rugs are removed from the dryers, they are stacked in smooth piles atop trucks (extreme left) and pushed to the inspection tables. They are then sorted, packed, weighed, strapped, and stored without being lifted in mass again to a high level.

Downhill handling beats lifting

This tufter watches materials handling costs—and makes chairs as sideline

Staff prepared Exclusive

APPROXIMATELY 100,000 pounds of throw rugs are shipped weekly from the C M. Jones Co. of Calhoun, Georgia. And to cut into human fatigue and production costs simultaneously the rugs are handled "downhill" from finishing through packing.

The rugs are removed from the dryers and laid on top of the wheeled boxes used to transport them to the packing and shipping department. The box is pushed to the shipping room and parked there until the inspectors get ready for it.

The loaded boxes are wheeled as needed to the final inspection tables, where the inspectors simply slide the load of rugs off the boxes sideways onto their tables. Then, as they sort them, they stack the rugs neatly into the end pieces of what later will be large shipping cartons.

These carton ends are kept on a low truck, and the rugs placed in them build higher and higher as a full carton load is approached. But the height is never so great as to cause the operatives discomfort or conscious effort as they continue to stack the individual rugs in place.

This latter arrangement is most convenient, since it keeps various lots separated and on wheels to be shunted aside if the next batch of rugs arriving happens to be of a different color.

Special orders requiring more than one color of rug per carton are filled by one person who counts out the rugs from the various trucks and stacks them just as do the inspectors. Orders for only one color per case are filled just by checking the count on a truck bearing that color and wheeling it to the shipping clerk.

This person lifts nothing heavier than the cardboard carton sides. He lifts the section high enough to clear the rug load and slips it down into the end pieces on which the rugs already have been placed. A second end piece serves as the top of the carton. Thus the box is built around the load it protects.

The truck platform is an inch or two higher than the scales platform, so it is an easy matter to shove the carton off the truck and down onto the scales. It is tumbled from the scales, strapped, and pushed (skidded on the floor) to its place in storage.

To make pushing the 100-odd-pound cartons almost as easy as walking, the tiled floor is kept coated with a very slippery wax

of the variety applied to dance floors. The person(s) doing the pushing wear crepe-sole shoes "to keep the carton from pushing the pusher around."

Every two weeks a janitor removes all old wax from the floor and replaces it with a new and clean wax coat. Shipping room personnel add it as they see fit.

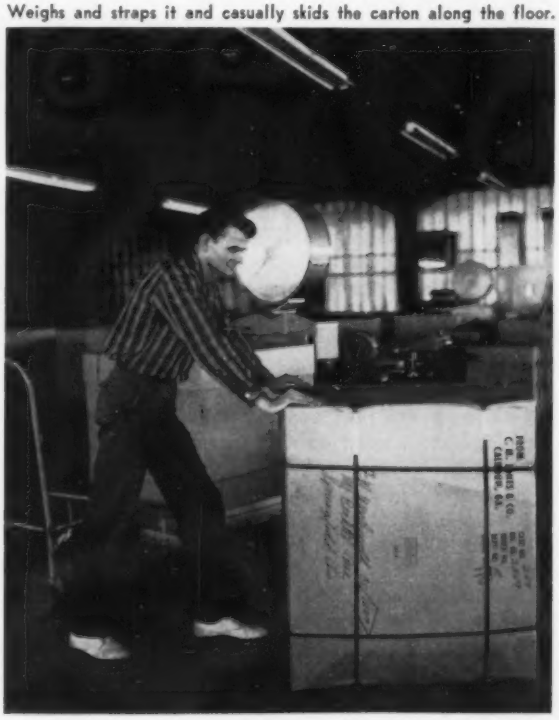
"Integrated Cooperation." This is a term used by Clarence Jones, president, when he refers to his relationship with his suppliers and his customers. Price fluctuations can heckle the daylights out of everyone involved, so Mr. Jones

Order clerk lifts top rugs from piles, stacks them in carton end.

Shipping clerk builds carton around load, lifts only paper sides.

Wheels the truck astride scales, pushes the carton off with ease.

Weighs and straps it and casually skids the carton along the floor.



sought the cooperation of both supplier and buyer in holding prices to a given level. In doing so, he has the confidence of both and is able to keep big customers coming back with more big orders.

In essence, his approach is simple hedging broadened to include the rubber, cloth, yarn, cotton waste (he makes some of his own cotton yarns), etc., suppliers. Those people agree to deliver so much at such a price; the customer so much at such a price. The result is a price fluctuation of about one per cent in any one year brought about by a "gentlemen's agree-

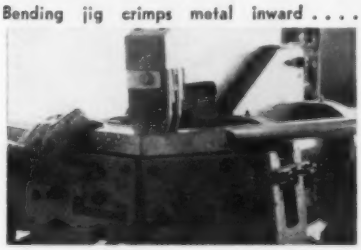
Continued on page 109

Output of aluminum chairs helps ease the seasonal slumps in tufting operations. These men are bending, punching, and riveting.

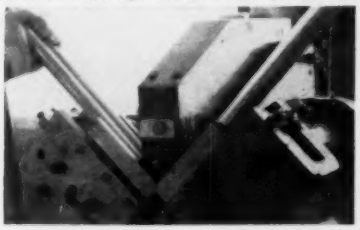
Webbing burned to length doesn't fray . . .

Is folded at end to receive eyelet . . .

That appears from out of nowhere . . .



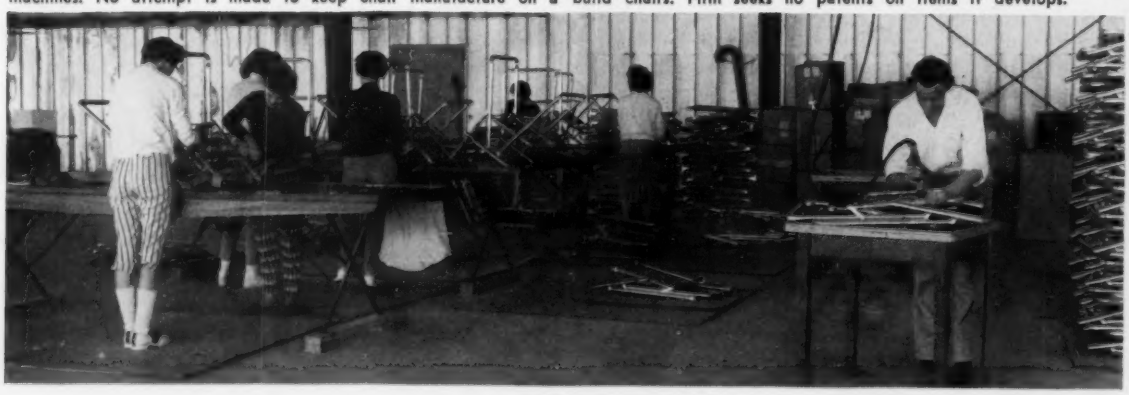
Bending jig crimps metal inward . . . .



To form smooth, reinforced 90° bends . . .

Frame is then punched for riveting . . .

As if to remind all that emphasis remains on tufting throw rugs, formal mass production basis—rather, the operation suggests a chairs are made at one end of room holding several tufting laboratory endlessly engaged in finding more economical ways to machines. No attempt is made to keep chair manufacture on a build chairs. Firm seeks no patents on items it develops.



Delivery end of the two-stage oven. The carpet emerges from behind the two operatives, passes overhead and down to floor level, and is given final inspection as it approaches the roll-up head. Burners in the four pent houses produce a total of 7,200,000 Btu.

Multi-Stage Curing

Oven is "exploded" lengthwise to receive scrim and foam station

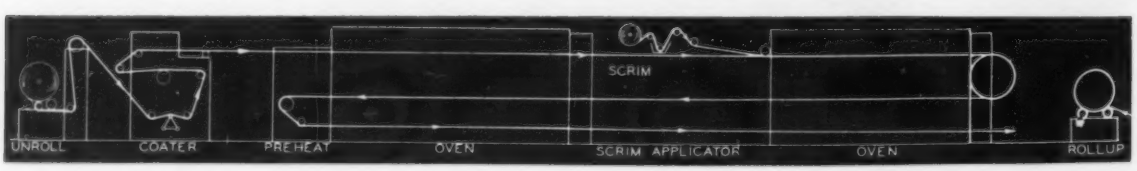
Staff prepared Exclusive

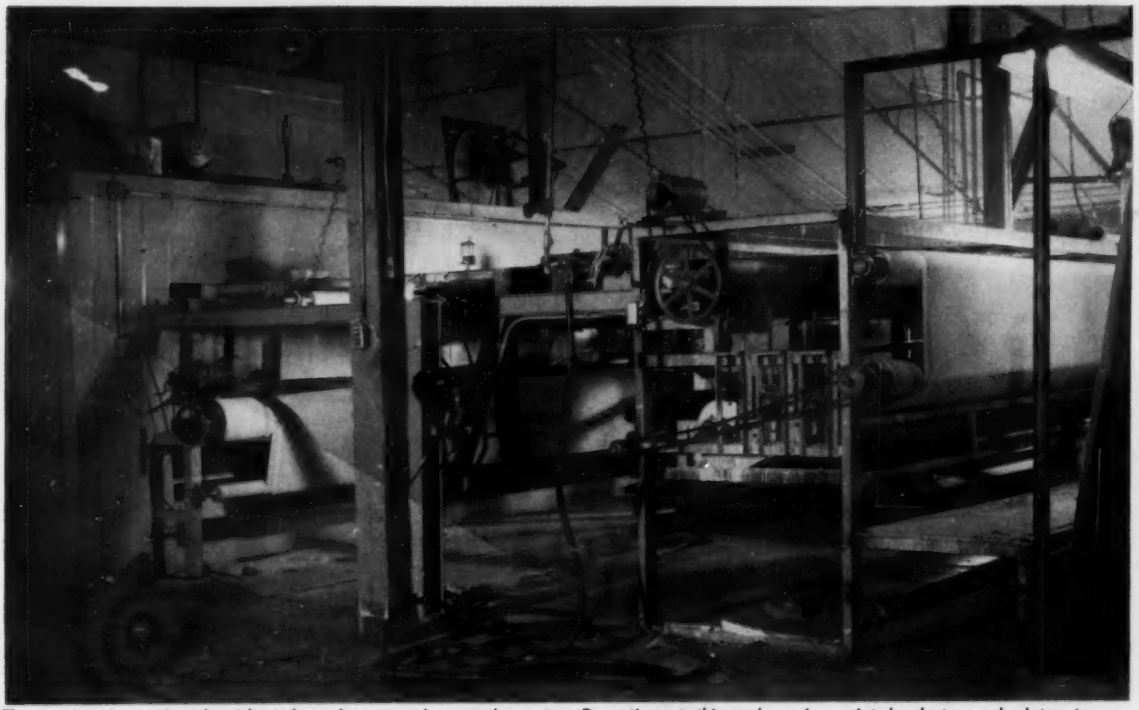
AT PAINTER Carpet Mills, Inc., Dalton, Ga., a curing range features two separate ovens that simplify the application of scrim or foam to the latexed carpeting. The first section of the range consists of the well-known coater and the beginning of the tenter frame.

This frame enters the second section, a 20-foot oven wide enough to handle 15′ carpeting and heated with a 1,800,000 Btu burner in the single pent house. In passing through this first oven, the latex cures only to the tacky stage necessary for good scrim or foam application.

The carpet then leaves the oven and passes through an open section fitted with the scrim and foam application devices. It then enters the second oven, a 60-foot section fitted with three pent houses, each holding a 1,800,000-Btu burner. The carpet doubles back inside this section, and still under tenter control, forms a second pass as it moves toward the front of the assembly.

It passes once again through the 10-foot section of open range beneath the scrimming and foaming station and into the first oven. It then doubles back on itself a third time and parallels the original pass to the exit. It is given a final in-



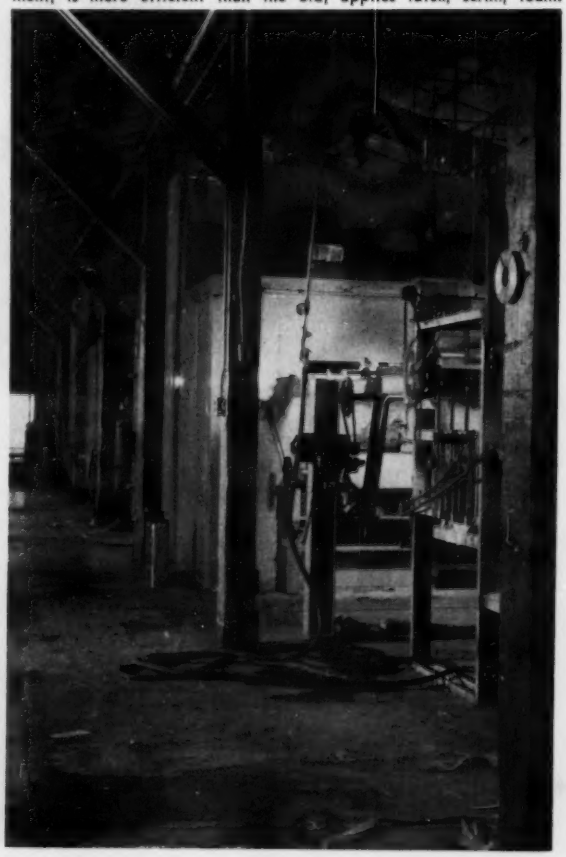


The coater is equipped with independent speed controls, yet responds to signals from master rheostat controlling over-all speed.

Operative at this end carries paint brush to apply latex to any spots missed by coater. Tenter frame begins near top center.

The old curing range dried the latex under a battery of more than 1000 500-watt incandescent lamps, would not apply scrim or foam.

The new unit, located in a building adjacent to the tufting equipment, is more efficient than the old, applies latex, scrim, foam.



spection there and is rolled to appropriate lengths.

Including the opening for foaming and scrimming, there are 270 feet of carpet in the oven at all times. In all, the assembly—ovens and latexing device and roll-up heads—spans 120 feet of warehouse.

Controls. A single d-c generator supplies power for the drive motors, and each drive section—coating (latex) station, first pass, second pass, and third pass—has its own rheostat for speed control (these help keep slack out of the system). In simple latexing, the tenter speed can approach a maximum of 40 feet per minute. Scrim is applied at an average speed of 26 fpm; while foam rubber backing is cured at speeds dictated by the amount applied. A 3/16" foam layer is dried at 12 fpm; a ⅛" layer, 18 fpm.

Controls permit the short oven to operate at temperatures different from those kept in the main or long oven. Scrim is applied with a short oven temperature of 240 F and a main oven temperature of 270 F. Foam is applied with both ovens heated to 340 F.

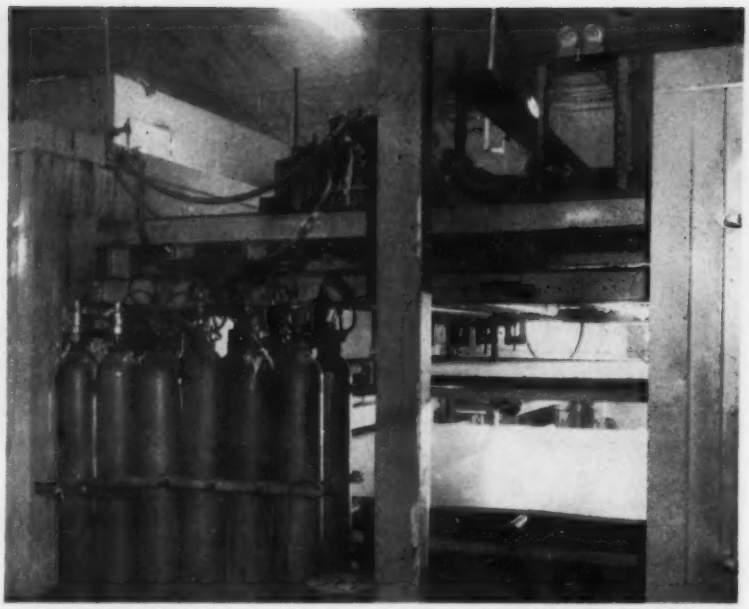
Foam is unmanageable if compounding and curing temperatures do not follow "straight and narrow" paths. If the least bit displeased with those factors, the stuff refuses to rise to the occasion and leaves the oven in a very flat state, resembling an overdose of latex.

Such failures do not result in the loss of the carpeting, however, for the material may be sent through the process again once the foam has been "mollified" and coaxed back into the line-up. A coating of good foam will adhere adequately to the collapsed layer.

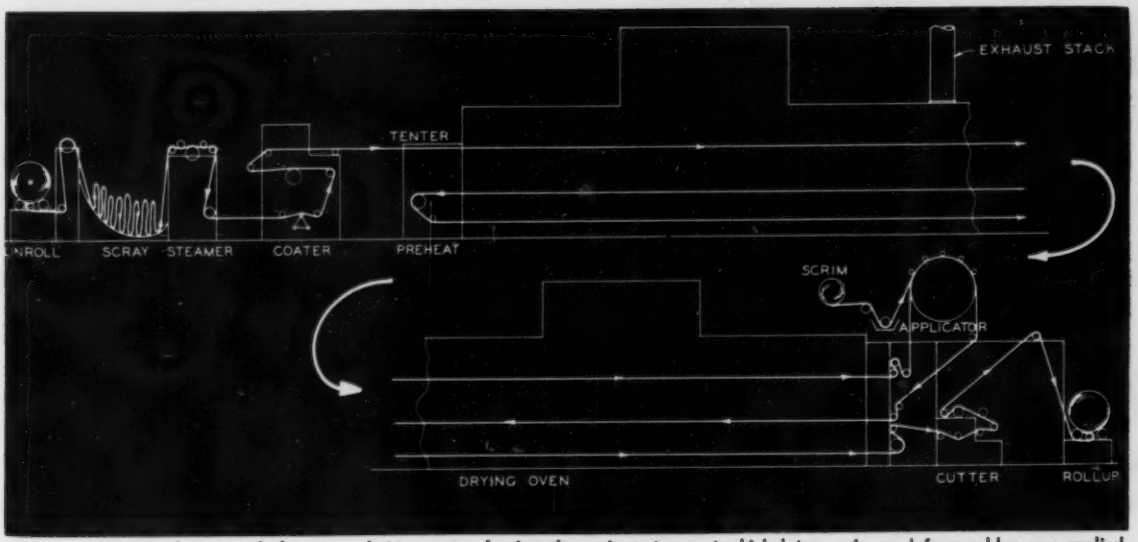
With this knowledge in mind, the oven's designers mounted a rheostat within easy reach of the foam crew to allow them to make needed speed adjustments.

The curing unit is the result of the impatience two men had with curing equipment that just wasn't designed for the job it had to do. Some five years ago Lew (Mose) Painter, president of Painter Carpet Mills, widened a conventional tenter to build one of the indus-

Continued on page 109



After it is passed through the short (20') oven just visible to the right, the latex is cured enough to receive the scrim or the foam. Thus the oven ends there and is replaced by a bridge on which are mounted the scrimming and foaming appliances. With the foam or the scrim applied, the carpet then enters the oven to the left. It makes three passes through the ovens and across this bridge. The group of cylinders holds carbon dioxide for the built-in fire control system. To further lessen possible fire damage, the oven is blown out with compressed air once each week to prevent an accumulation of lint or fly. Fans supply ventilation to operative tending scrim applicator in cut below.



Schematic drawing of a typical three-pass drying range, showing the various stages at which latex, scrim, and foam rubber are applied.

A glance at curing ranges

A summary of today's practices and equipment and a look at tomorrow's

by Howard McCall
J. O. Ross Engineering Corp.
Exclusive

TUFTING SALES are expected to reach over the $500,000,000 mark in 1960, and this sales figure will have been reached in part through such sales aids as the proper latex application, scrim, foam rubber, *and the three-pass drying and curing oven.*

Less than six years ago the majority of all latex ranges consisted of a spray unit followed by a short bank of electric lamps. Speeds were slow, and operation, maintenance cost, and bulb replacement was extremely costly.

Today's modern latex range provides for latexing at high speeds with the carpet held to width by means of tenters; proper drying and curing times engineered to fit the various latex formulations; proper application of scrim backing for stability; and as of late the application of foam rubber to the back of carpet.

The first latex drying and curing oven, forerunner of the modern-day range, was first introduced in 1953 on a joint project with the Tifton Rug Mills. The writer, working in conjunction with James Porter, president of the Tifton Rug Mills, designed a 30-foot gas-fired oven for three-pass operation.

The oven provided drying on the first pass, with curing following on the second and third passes. The unit, which was designed to handle 12′ carpet, even today runs at speeds up to 20 to 25 feet per minute on light promotional carpet. It was designed for operation with natural gas with delivery air temperatures up to 400 F. Today there are probably more than 50 similar units of this type in operation which were manufactured by several dryer builders.

Single-Pass Dryer. The single-pass or flat type of dryer has been in use by the original carpet manufacturers for many years. On the woven and Axminster rugs these manufacturers have gone to great lengths to set up a range where nothing is allowed to touch the pile during the process.

The floater dryer was also used on this type of drying application. The single pass oven is still very popular in this type of application, and drying units range in lengths from 60 up to 120 feet. Much larger air quantities and horsepowers are used in order to reduce the drying time.

In the modern three-pass range, drying and curing times of from five to fifteen minutes are required with temperatures ranging from 250 F up to as high as 400 F where natural or propane gas is available.

The tenter was first introduced to the tufted carpet industry on a straight pass oven and was of the clip type with supporting rolls to carry the center of the rug. Shortly thereafter the pin tenter was introduced and today is considered a standard part of a modern range.

Tenters are available for use on both the first pass and on the re-

turn—they can also be used on the second pass of the oven. The main use of the tenter is to hold the width of the carpet during the drying and curing cycles.

Scrim, Foam Rubber. Scrim, which offers stability and body to the rug, was introduced a few years ago and has also added greatly to up-grading the tufted carpet. Today most of the scrim is manufactured of jute or of paper. It is applied at the coater on a single-pass oven, or between the end of the first pass and start of the second pass on the three-pass unit. Speeds for application of scrim vary from 10 to 20 feet per minute.

Although foam rubber has been cast successfully on stainless steel belts for many years, it has only been as of recent that it has been introduced for direct application to the back of the tufted carpet. By applying foam directly to the carpet the necessity for an additional pad has been eliminated and the carpet has gained in "plushness."

Today's foam is being applied on widths up to 15 feet with thicknesses up to ¼" with weights as high as 24 oz per sq yd. Speeds in the range of from 8 to 15 feet per minute are considered good for foam rubber application and normally tie in with the output of the standard foam mixing equipment.

Modern coating ranges today are designed to handle both latex coating, back sizing, as well as the application of the scrim and foam. Foam is applied by means of smoothing rolls with dams cut to confine the foam to the proper carpet width.

A well engineered coater includes a four-sided doctor blade, tension control, edge lifters, and speed control over the coating roll.

Combination 3-Pass Units. In addition to the standard three-pass drying and curing unit, combination three-pass units are available for not only handling latex but for the drying of wet carpeting after dyeing or wet-out.

The carpet, after leaving the dye beck and passing over a squeeze roll or vacuum extractor, will contain moisture varying in content from 60 to 120 per cent and which must be removed during the drying operation.

This is normally three or four times the amount of water required to be evaporated during the drying of the latex and, hence, larger quantities of circulated air must be used.

In spite of the rapid advancement which has been made in the last five years, work is continuously being done in research and development to improve these lines for better products, better quality, higher speeds, and new ideas for backing.

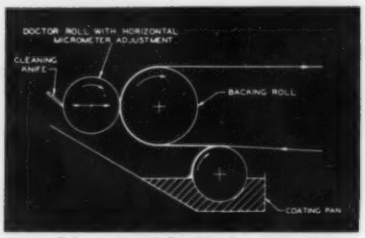
Multi-Stage Drying. Multi-stage drying and coating ranges similar to those being used in modern-day finishing plants are now being considered. Latex is first applied on a pre-coater, where a light coat is applied. This is then followed by a short oven.

The Number 2 coater is used either for further latex application or the application of scrim and foam rubber. This would then be followed by a 50 or 60 foot, three-pass oven for the final drying and curing. A range of this type eliminates the necessity of two-step operation, and much higher speeds can be obtained on all types of coating.

The Field Ahead. Much work is being done on high velocity drying in which the latex will be dried at velocities five or six times those normally used today. This type of drying is quite popular in other fields, and numerous installations have been made on drying units requiring only 10 or 12 feet in length where originally it would have taken 90 to 100 feet to do the same job.

Still further in the future are the possibilities of the use of the high velocity floater dryer and the multi-pass floater dryer.

Improvements in coating applications are being studied continuously with more thought being given to precision coatings at higher speeds. Heavy duty coaters such as the Micro-jet air-blade coater, the Levelon coater, and the knife coaters, have been developed for other industries and their use for the tufted industry is being studied.



Schematic of the Levelon coater

The Micro-jet coater, for instance, has been used on paper machines in coating widths in excess of 20′ and at speeds in excess of 1,000 feet per minute. This unit uses the principle of an air nozzle to cut off the excess coating on the material.

Prior tests have been run on carpet material and the advantage thus shown is a uniform coating on both the tufts and in the valleys between the tufts, whereas a knife or scraping arrangement tends to push all of the coating down into the valleys. Doing an equal job with less coating material over a period of a year would easily justify the expense of modern coating equipment of this type.

To better study these problems a continuous coating range has been set up for 20″ wide material which includes automatic unwind, re-wind, a three-zone oven with a tenter, and a combination of many types of coating heads. Another coating line with a high velocity drying section has been set up to determine the uses and improvements of high velocity air for carpet drying and for other industries. All of this equipment is available for customers' use to best determine how improvements can be made in drying and coating operations.

More lamination is being done and considered where other items such as heavy scrim, polyurethane, and other materials can be successfully laminated to the back of tufted carpets.

The last five years have seen many improvements in the tufted industry, but through research and development the next five years should bring even more improvement and progress.

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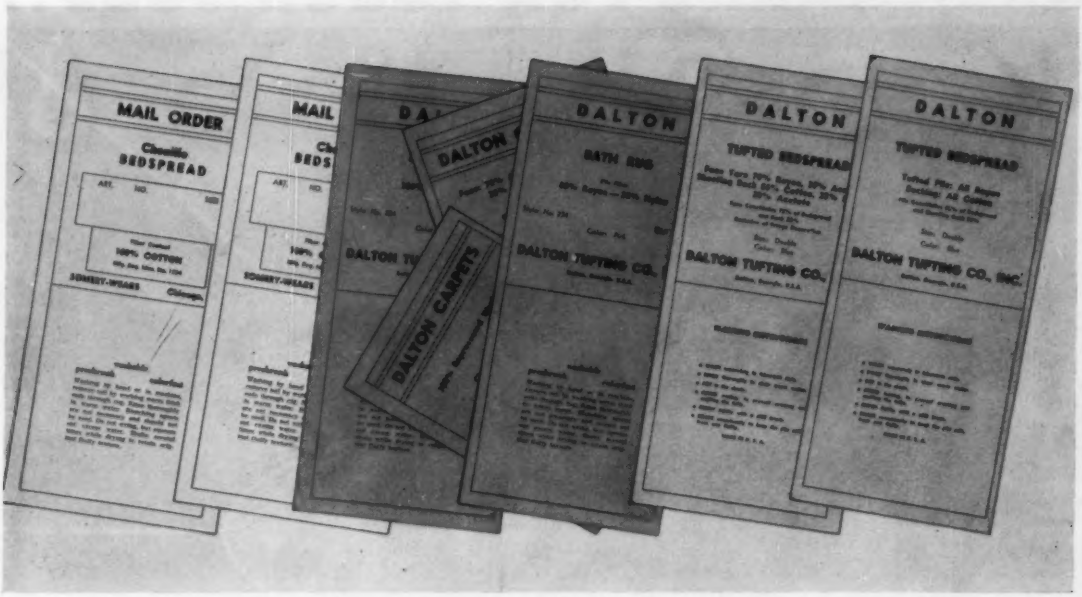


FROM LAW TO LABEL

TTMA helped translate Textile Fiber Products Identification Act into labels

by Robert T. Miller*
Exclusive

MOST tufters stand in agreement that the Textile Fiber Products Identification Act, which became effective on March 3rd is a "good thing."

They believe it will be an invaluable deterrent to false advertising claims from some quarters. And it should have the additional effects of bringing about higher quality goods and of building greater consumer faith in the industry.

Now, agreeing with the FTC that such an Act is needed is one thing—the easy part. Putting the Act, with all its many rules and ramifications, into practice on a scale the size of the tufting industry is something quite different.

Following several meetings of a special TTMA Committee appointed to work out some of the kinks and make recommendations for a more workable Act, and several trips by Association officers to Washington for hearings before the FTC, parts pertaining to tufting of the Textile Fiber Products Identification Act were adopted.

With the approval, by Congress, of the Act, the TTMA set about to acquaint manufacturers of tufted products with its tenets and the why and how of bringing tufters into compliance with the Act.

As one of the first steps in this industry-wide education program, Harvey Hannah, chief of the Investigation Bureau of FTC's Textile Division, accepted an invitation to address TTMA's national convention at Hollywood Beach, Fla. in May, 1959.

The close of the convention signaled the beginning of a concerted effort by TTMA to have all tufters fully covered by the time the Act became effective on March 3, 1960.

Indoctrination meetings were held for all members of the industry so such things as how to acquire registered identification numbers, continuing guarantees, etc., could be discussed.

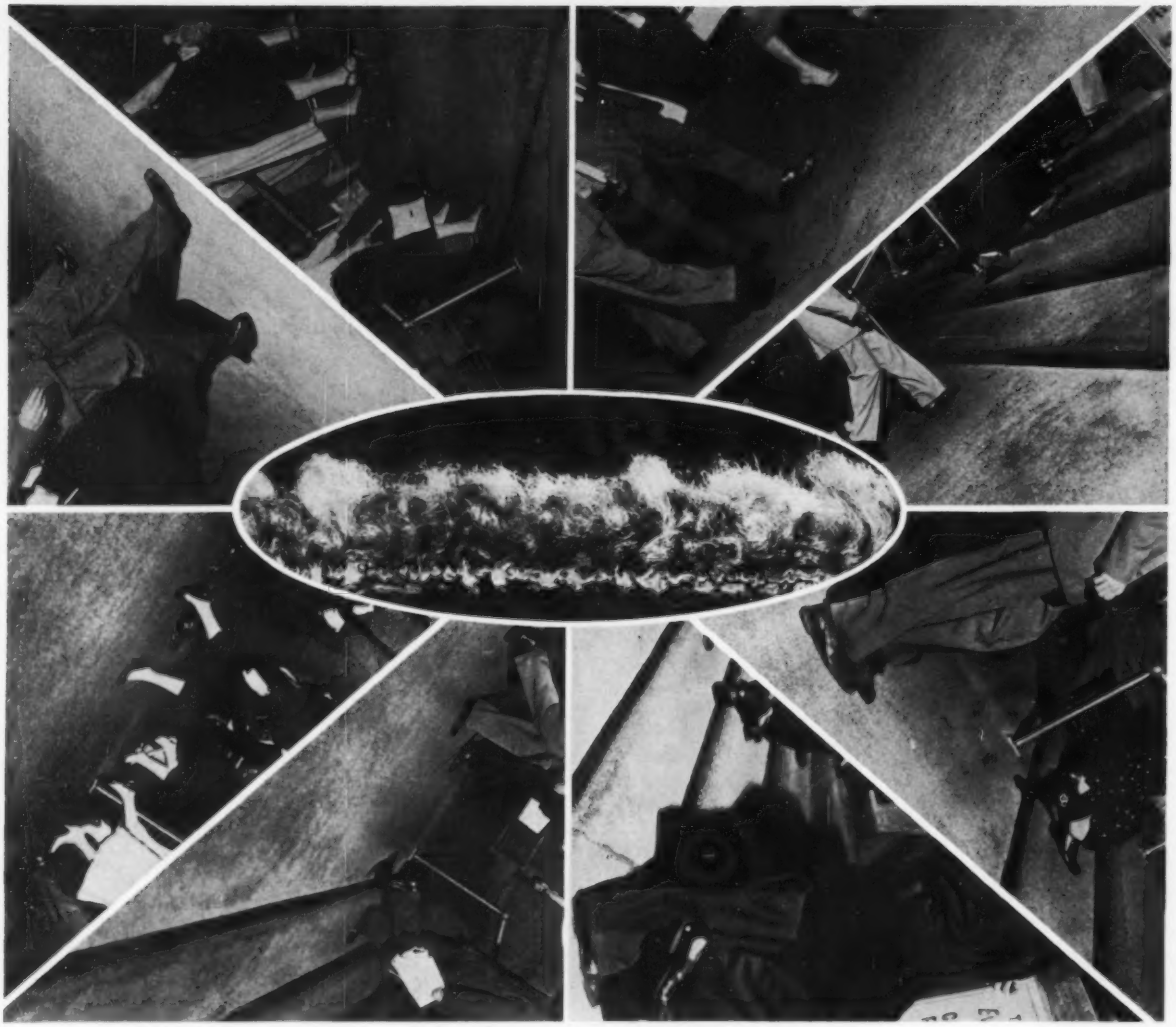
For one such meeting TTMA commissioned a local printing firm to print several copies of a sample label, indicating proper methods of setting forth information as required by the FTC.

These labels were prepared for carpets, bedspreads, and rugs. To this meeting were invited representatives of every printing shop in Dalton, Ga., the theory being that by familiarizing printers with the requirements they could then be of great assistance to the manufacturer in preparing proper labels. This idea has proved invalu-

(Continued on page 111)

*Assistant to the executive vice-president, Tufted Textile Manufacturers Association.

TOUGH YARNS FOR TOUGH JOBS...



...CARPET, for example

Recently, a dramatic comparison wear-test of carpets of Textured Caprolan was conducted by Allied Chemical in New York's busy Penn Station. More than a million-and-a-half people trampled across the carpet without any detectable sign of wear or significant loss of texture. This is easily seen in the cross section of the actual carpet shown above. The test was a milestone in the rapid progress of textured filament nylon for home furnishings fabrics such as carpets and upholstery.

This innovation, pioneered by Allied Chemical, was made possible by the introduction of our Caprolan nylon heavy yarns. Strong and durable, they have an outstanding affinity for virtually every class of dyestuff. These white, white yarns also possess excellent workability with heat and are completely compliant with every texturing process which has been called to our attention in the past four years!

Caprolan heavy yarns are now included in U.S. Navy specifications for marine rope, Government specifications for aircraft seat belt webbings and are enjoying increasing use in fire hose, seine twine, cords and dozens of other end-uses where toughness, strength and flexibility are essential.

If you have a tough job, we have the tough yarns for it. Call our technical staff for help in improving existing products or developing new ones with our wide range of deniers in Caprolan nylon heavy yarns.

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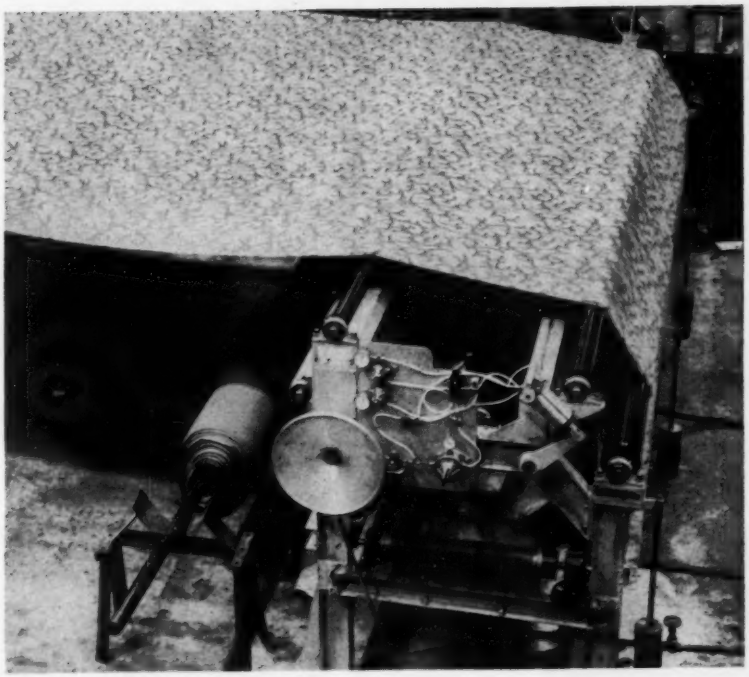
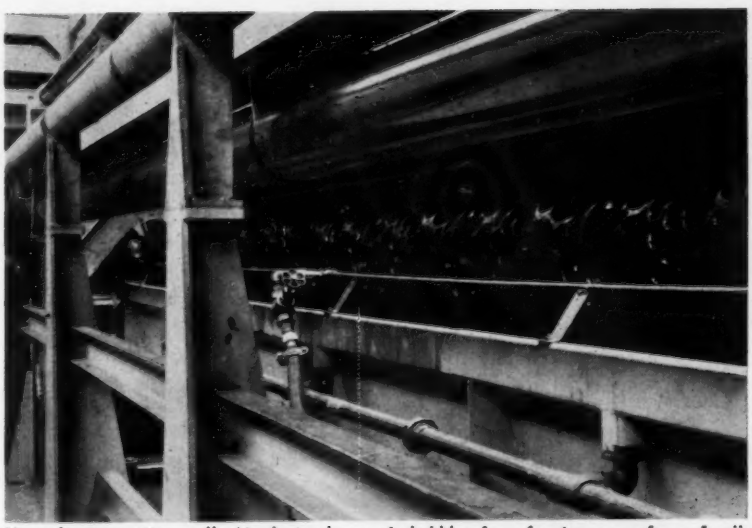


General view of B.T.M.'s carpet printer threaded for a run. Note that carpet enters and leaves from rear and that the liquor trough (fitted with casters) is winched into position under pattern roll.

Printing: New Horizon for Tufted Carpets

by P. Abbenheim
Exclusive



View showing pattern roll. Air doctor keeps air bubbles from forming on surface of roll.

TUFTED carpet manufacturers in Britain are of the view that the introduction of commercial printing techniques has come at just the right psychological moment for the trade as a whole.

Unlike Americans, the British consumers have never really taken to high and low loop pile carpets nor even to the combined cut and loop. As a result the individually controlled needle machine has not so far created a very great impact on the trade.

Asked what his objections were to controlled needle tufting, one carpet manufacturer said: "Well, I think it is really cheating. And the method of getting the pattern into a tufted carpet is basically not the best. After all, assuming we are tufting with a couple of colors, the alternate needles are threaded with contrasting yarns, and with every movement of the needle bar tufts are thrown through the backing by both sets of yarn. Whether one yarn or the other is obscured does not really matter. The fact is that an unwanted tuft is inserted by one or the other needle and is, therefore, hidden from

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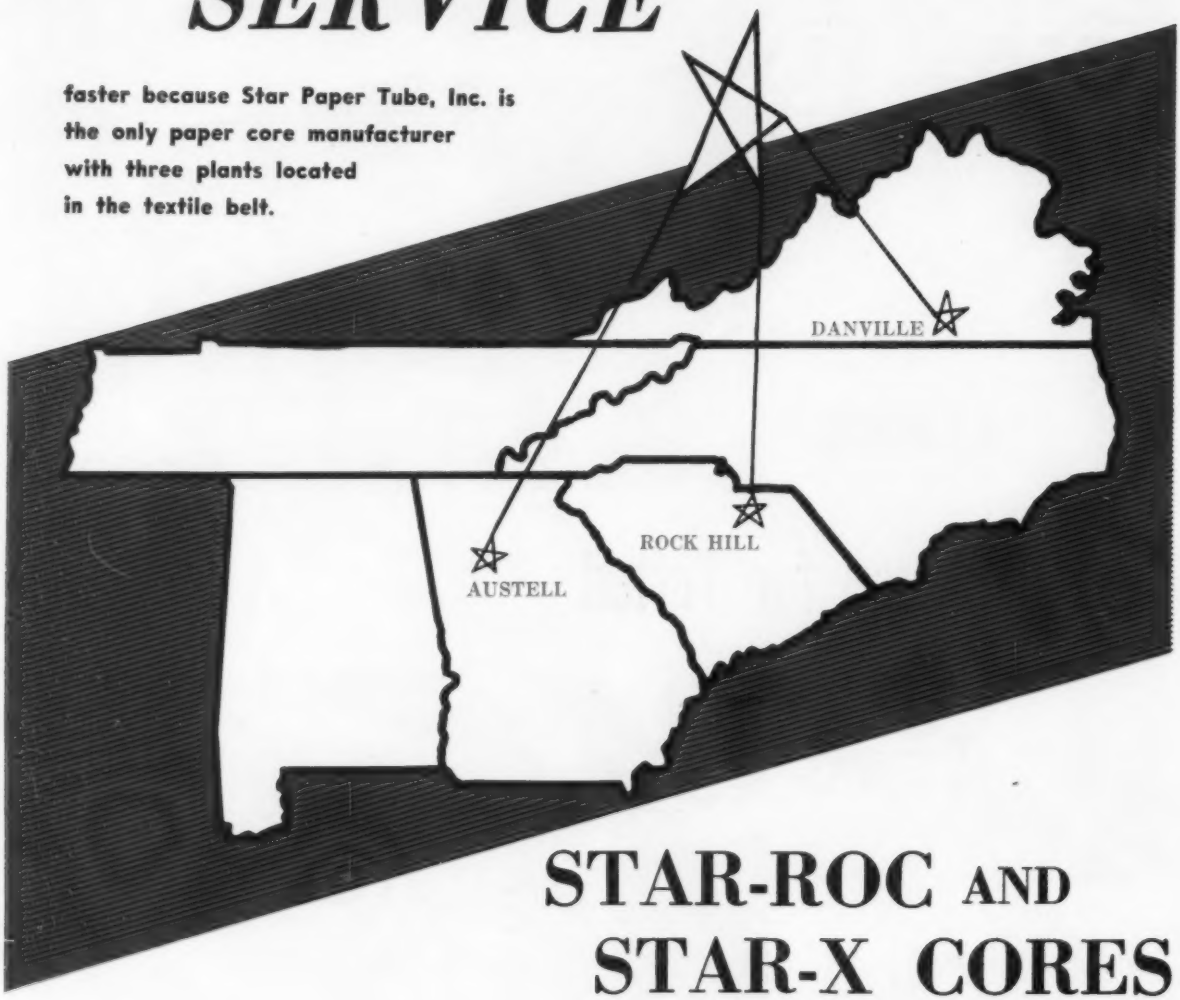

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sight by being drawn right down to the backing.

"Printing, however, needs every tuft of a specific height and uses them all. This, if it can be made really successful, should be the biggest thing since the advent of the tufted carpet itself."

Certainly it looks as if printing, in one form or another, will place tufted carpets on a directly competitive basis with such conventionally patterned carpets as Axminster and Wilton.

Hush-Hush Techniques. At least three different carpet printing techniques are now in process of development in Britain, and these are in various stages of commercial evaluation.

Still on the secret list is the process by which this carpet is being printed. Developed by Carpet Printers, Ltd., it can print eight colors (54" max. width) in an 18" repeat.

The biggest impression, so far, has been created by Carpet Printers Ltd., of Manchester. This firm is a subsidiary of the huge Bradford Dyers' Association and is located in an extension to one of this group's many subsidiaries.

The system is commercial, and good quantities of carpet are now being printed at the plant. But it should be stressed that the method is still limited in many ways.

So far the maximum width printable by the patented method is 54", although Managing Director Tom Leckie says that they are now building a unit to print carpet up to 12' wide. The size of the repeat is at present restricted to a maximum of about 18", but as many as eight colors can be printed on the carpeting.

Carpet Printers is in business to process commercial quantities of tufted carpet, and because of this they are restricting themselves, at present, to printing only 100 per cent viscose rayon pile carpets.

No information has been released as yet about the actual printing technique, but there is a strong view in the trade that it is in fact a modified screen printing system. Mr. Leckie says he will not say how it is done until all his patents have been granted. When that time comes it is highly probable that they will be prepared to license manufacturers in other countries to print by this system.

Whatever the system is, it can print 8 colors in an 18" repeat across 54 inches, at a good speed and on cut or loop pile carpet. With the single machine at present running, Carpet Printers say they can feed into the trade from 2 to 3 million square yards of carpet per year, and this will be substantially increased when the new printer comes into operation.

The carpeting is printed with direct dyes which give quite a satisfactory fastness and keep costs well down. After printing, the prints are washed and then dried on a conventional forced-circulation, hot-air drying machine. It is then taken from the delivery end of this unit and fed directly into the adjacent backing unit. Mr. Leckie stressed that although it would have been quite feasible to make this a continuous process, he prefers a batch system.

Backing is by a conventional lick roll applicator, followed by drying. Standard backing formulations are applied, although special qualities can be coated, if a particular manufacturer requires. As the firm is working on a commission basis it is obvious that they encourage standard procedures as far as they can so that the most rational production can be employed and this is reflected in maximum production.

Just how successful this new system really is can be illustrated by the reaction of one carpet manufacturer who has decided to withdraw a traditional Axminster quality and replace it with exactly the same design printed on a viscose pile tufted.

Mr. Leckie says that he does not think that printed tufted carpets will seriously affect the traditional carpet markets, but will rather extend the existing tufted business. The fact quoted above leaves some doubt about this though.

Roller Printing. Another carpet printing system from which the veil of secrecy has now been lifted is that of British Tufting Machinery Ltd. They have been granted patents for it in most of the leading industrial countries.

This system involves the use of special rollers, but essentially it is a very simple technique and one which might well have a great affect on the carpet trade as a whole. Recently the firm has undertaken a very detailed costing of the process, and it would seem that even a relatively small tufted carpet manufacturer might find it worth his while to install his own printing plant rather than to leave his printing to the large commission printer.

The printing system uses a roller engraved with the pattern to be printed. This is coated with a

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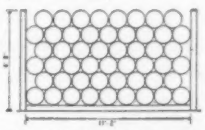

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1017

Continued from page 99
layer of polyurethane flexible foam a few millimeters thick.

The roller revolves in a bath of printing liquor. In the bottom of the bath there is an idler roller pressing against the printing roll. This makes sure that the foam is saturated with liquor and that no air bubbles are left in it.

Taking a particular point on the print roller, it will be seen that this passes upwards and emerges from the liquor to be confronted with a blast of air from a series of tiny jets positioned across the full width of the machine. This removes any further air bubbles that are caused by the engraved roll emerging from the liquor.

The tufted carpet is taken over the top of the roll with the pile pressing down against the flexible foam. Yet another roller is positioned at the top of the print roll and this is used to give a nip so that the carpet is pressed to a required degree against the foam. This nip will depend on pile height and density and the degree of penetration required.

The net result is to cause the foam to shoot a multitude of tiny jets of the print liquor into the carpet. On a trial run such intense penetration was obtained that the liquor came through the backing. In another instance only the surface received color. Obviously the ideal is to get penetration right down to, but not through, the backing.

Definition on the carpet is very sharp, and the more dense the pile the better the quality of the print. British Tufting have high hopes for ⅛ gauge printed tufted carpeting. It also works well on loop pile.

Already they are building several machines for installation in British and Commonwealth factories. They have concentrated on wide width machines from the outset, and the first unit built was 16′ wide, although it is only used for printing 15′ carpet. The philosophy behind wide width machines is that if the firm once can cope with broadloom then the narrow fabric will be no problem.

With broadloom the problem of shrinkage and distortion following washing, steaming, developing, etc., not to mention latexing, is far less serious than with say 54″ or even 108″ carpet. The Blackburn firm has, however, just evolved a completely new system of their own for processing tufted carpet so that it can be processed through printing machines (washing, steaming, latexing, etc.) without any loss of shape whatever. The concept behind the process is extremely clever and ingenious. Simplicity is the keynote in the system which is based largely on feeding the cloth on pin tenters at as many stages as possible, even over the lick roll in the latexing.

It will be seen from this description that the B.T.M. printing technique, although simple, is limited to one color per unit. It is, however, quite feasible to have a series of units, running in unison and applying a series of colors to the carpet, and this is the intention. Just how many colors will eventually be printed is a matter of speculation, but every phase in the carpet printing project is considered with a view to keeping price down to an absolute minimum.

One practical method of getting a good color effect is to piece-dye the carpet first and then feed it through the printer, overprinting the dyed fabric. This is probably what one of the first firms to use the machine will do.

On the question of cost, B.T.M. say that the cost should be no more than piece dyeing and it is likely that it will be even less. They have been working very closely with a dyestuffs manufacturer and initial costs are revealed as being very low indeed.

Carpet Printers, on the other hand, quote a price for their printing process that is about triple the price of piece dyeing. Quite a few people in the trade consider this to be an extremely high price and one that is unrealistic, for in Britain tufted carpets are only now emerging from the first stage of being cheap imitations of real carpets and an expensive substitute for, say, linoleum.

Now, thanks to the efforts of a series of large firms, notably Rivington Carpets (tied in with Cabin Crafts) and Kossett (who have the know-how of Bigelow Sanford) and Birstall, the tufted carpet is becoming respectable and accepted as a quality product. Printed tufted carpets will reach the market in a variety of designs that will be virtually identical to traditional designs.

That the "telltale" rubber backing is now no longer a mark against tufteds is revealed by one British traditional Axminster manufacturer who is now introducing a range of Axminsters that have been given a latex backing. He explains that this gives them non-slip properties, but also an ease of laying without fraying that is unobtainable on a conventionally woven carpet without a backing.

Deep Dye Roller Process. One other method of carpet printing might be mentioned. This is still in the development stage and is in some ways reminiscent of the Deep Dye process.

Again an engraved roller is used. This time it is covered with a layer of plastic material—this time hard, say ebonite—which is cut so that the desired pattern is now *recessed*.

The carpet is pressed against the roller and the pile pressed into the recesses on the roller. Into the recesses, from within the roller and through a series of little ducts, liquor is forced so that it penetrates the pile and so dyes locally in the shape of the pattern.

As the roller turns, a suction unit is brought into play over the same ducts and excess liquor is removed.

To prevent undue flattening of the unprinted pile, the roller is cut away in a slope from the walls of the recesses so the pile is deflected into semi-pressure zones.

That the system has limitations is obvious, but the people developing it have high hopes of the process. But by the time it reaches the market its two predecessors might well have captured the bulk of the trade.

Tufters in Britain watch printing with a hope still, as yet, mingled with doubts. But gradually a cautious optimism is emerging.

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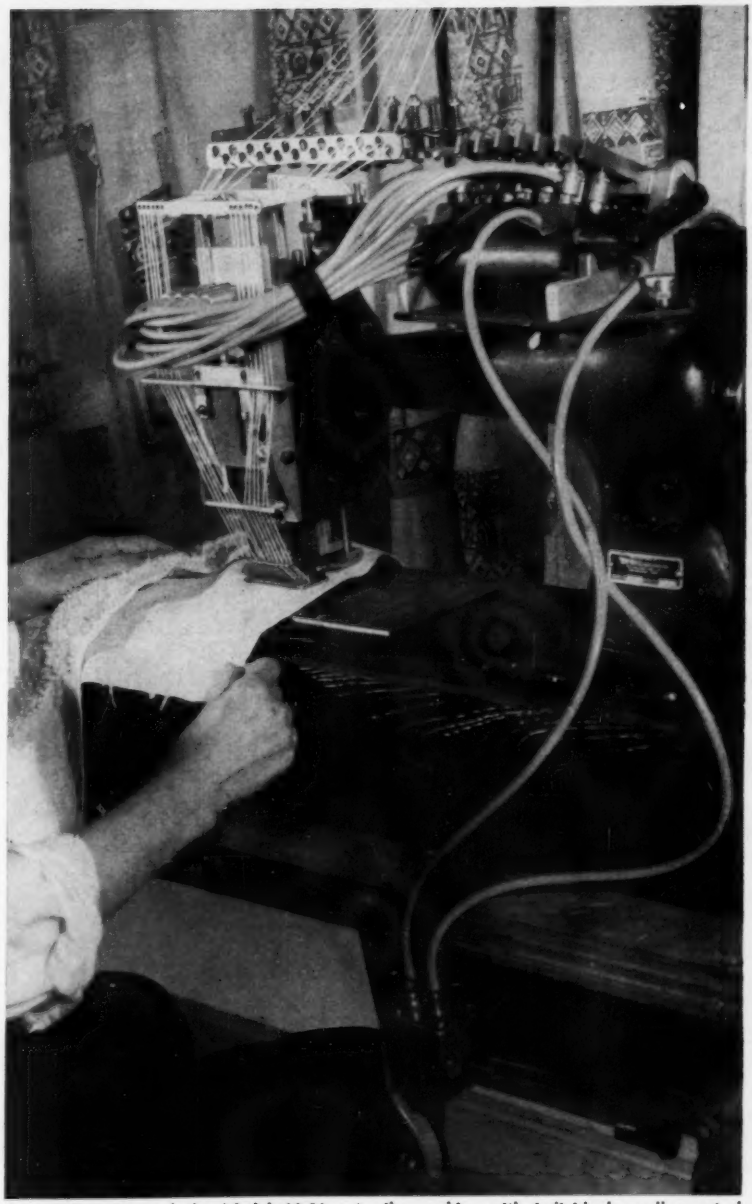

Pneumatic system of the Model 20-20 cut pile machine with individual needle control.

TEN-TEX Corporation of Georgia has patented (or has patents pending) three machines that either speed up production, permit patterning hitherto not done mechanically, or both. One is a single-needle, air-operated, cut-off machine that will increase single-needle overlay per man-hour about five times.

The unit utilizes compressed air (cut on and off by a knee-operated valve) to lift the presser foot and needle and hold the severed end as the operative skips a blank portion of the pattern.

It is designated the Model 20-20 after a predecessor of that number—and can indeed be applied, but with some difficulty, to any existing Model 20-20—and supplied with up to 24 needles.

On this machine, however, the needles all stop and start alike, a distinction that must be remembered if confusion is to be avoided with another modification of the Model 20-20 next described.

This variation of the above model is a cut-pile machine that can be made in almost any number of needles—it is adaptable to yardage machines—and which basically is designed for overlay work. It, too, utilizes compressed air to lift individual needles and

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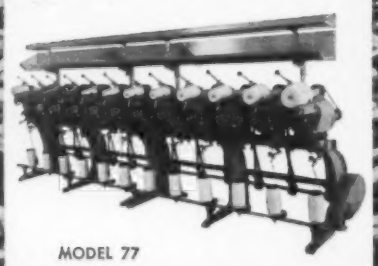
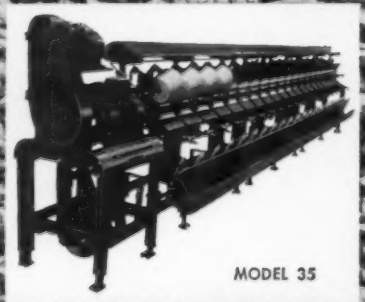


MODEL 77

MODEL 78



MODEL 35

Each of these machines is designed for a different situation. Each does a highly creditable job within its scope. Here are the details: —

MODEL 78 — This machine (built in 5 spindle units) produces 8" to 10" traverse, precise wind cones up to 16" in diameter and weighing up to 35 lbs. each. Ball bearing spindles are individually motor driven at speeds up to 800 R.P.M. It has controlled slow start and spindle brake, heavy duty belt gainer with hand wheel adjustment (or positive gear gainer, if desired), positive size stop, electric drop wire and expansion type cone holders, with handle control, for easy donning and doffing. Will wind overend from bobbins or from swifts, reels or unrolling devices.

MODEL 77 — Built in 6 spindle sections, produces 4" to 8" traverse, precise wind cones up to 10" in diameter and weighing up to 14 lbs. each. Ball bearing spindles, individually belt driven by one motor, run at speeds up to 1100 R.P.M. It has a positive, long wearing package brake and positive solid tapered pulley belt gainer. It will wind overend from bobbins, or from swifts, reels or unrolling devices. 90° build-up from face of cone prevents broken back or under-wound packages.

MODEL 35 — Built in units of 10 spindles to 80 spindles. Produces open wind 8" traverse cones up to 11" in diameter and weighing up to 9 lbs. each. Winding speeds from bobbins is from 180 to 250 Y.P.M. and from skeins 100 to 150 Y.P.M. Standard taper cone holders are 7° 22½' and 3° 51'. Package brakes and disc waxing attachments are extra. Can be equipped to wind from swifts, etc. as well as from bobbins.

Write for Model 78 bulletin A-98A, Model 77 bulletin A-99, or Model 35 bulletin B-46A.

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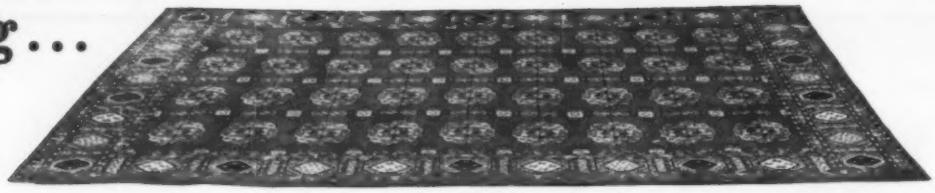

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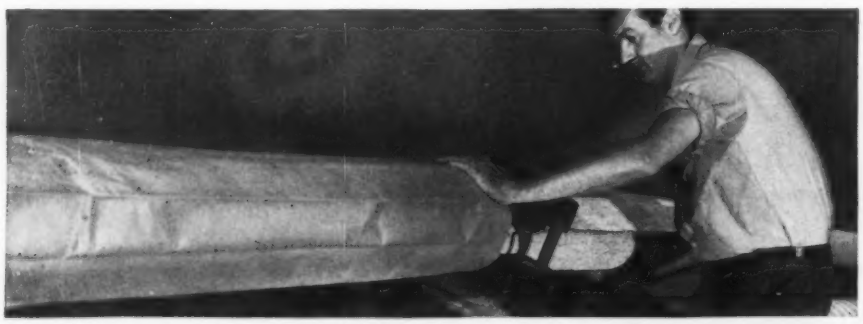

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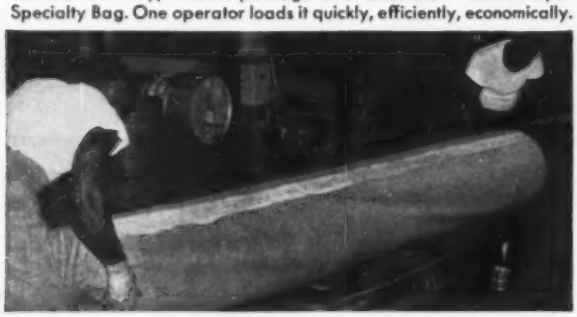

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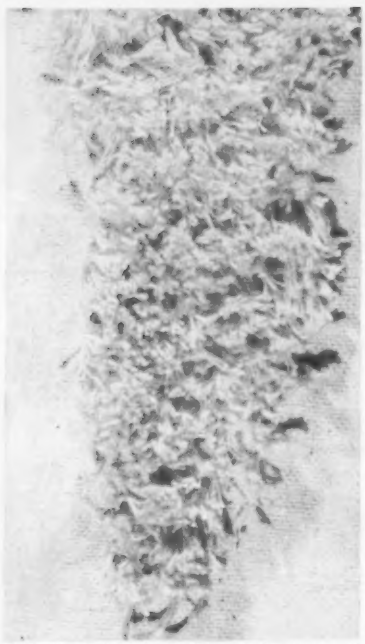
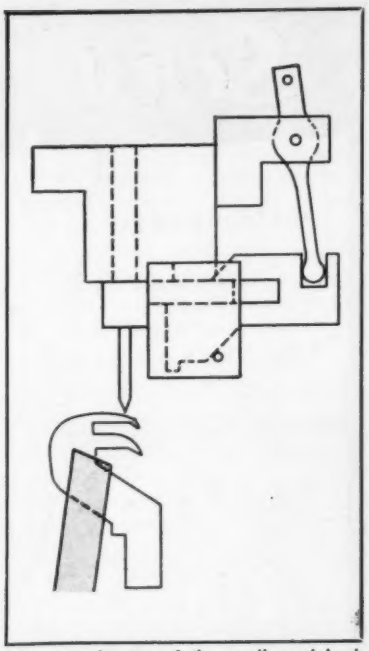


Typical overlay work (face & back views) done by the Model 20-20 cut pile machine.

with the individual needle control. The patterning is controlled by small drum.



Schematic drawing of the needle and hook motions of the high/low cut pile machine.

the corresponding cut ends out of action.

A small pattern drum is mounted to the right rear of the machine. The familiar probes or fingers follow the drum's engravings and actuate very small air valves that send air through plastic tubes to pneumatic cylinders to move the needles away from needle bar influence and take them out of action.

Spring-loaded, these needles return to action when the pattern drum causes the air supply to be cut off. This is made as a new unit only and is not adaptable to existing machines. These variations of Model 20-20 require 80 psi on the pneumatic system to assure smooth pattern action.

The third new unit (called Model 1050) is a high/low cut pile machine made in gauges of 3/16" and up. It features two-needle pattern control and effects the high/low loop arrangement by lowering the needle to throw a loop around the bottom prong of a double hook (see drawing). A conventional knife is given a longer throw to enable it to drop far enough to cut the long loop and to lift high enough to sever the short loop.

Patterning will be done mechanically on yardage machines up to 10 feet in width and employing a complete repeat of a pattern. When machine width exceeds 10 feet, electrical patterning will be used.

Downhill Handling

(from page 93)

ment." The cooperating suppliers are assured of business protected from competition.

From Rugs to Chairs to Rugs. In an era in which industry arouses no interest just because it diversifies its operations—i.e., Bendix Aviation Corp. makes bobbin holders for the textile industry—Mr. Jones is something of a pioneer in that he has diversified his tufting operations by making aluminum chairs and lounges in the same room where his tufting machines are making throw rugs.

He makes chairs to keep his technical and office forces intact during periods when tufting is lean business. For a quick round-up of the story, see the pictures that follow. Incidentally, the customers who buy the bulk of his rugs also buy his chairs.

The plant could turn out some 500 chairs per day if full assembly lines were used. But the firm carefully avoids placing emphasis on chair manufacture, utilizes some physically handicapped personnel at repetitive jobs that could be performed at lower cost by machinery.

Multi-Stage Drying

(from page 94-B)

try's first workable frames wide enough to handle 18′ carpeting, and mounted it under batteries of infra-red lamps that served as heat sources for drying the latex. At the time, scrim and foam rubber were not standard parts of tufted carpets.

But almost overnight that situa-

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tion changed entirely. Scrim had to be added, and someone devised a practice of vulcanizing a layer of foam rubber to the carpet back to serve as a built-in pad. The hitherto satisfactory dryer became severely limited in use.

Some of the existing curing units could be adapted to the foaming and latexing operations by building scaffolds, troughs, immersions rolls, etc., onto an end of the oven and applying the latex or foam at the end of the first pass. But this meant changing tenter speeds to have the latex cured to the proper degree as it emerged at the end of the first pass, and often it meant slowing the tenter and cutting into production figures—a sore point. But Mr. Painter's drying unit was a single-pass affair that did not lend itself to the new operations.

Mr. Painter and his son Jack made plans for the erection of a unit that would permit the needed flexibility and at the same time give them more production than they were then experiencing. The result is the unit described above.

Mr. Painter summarizes the whole situation with: "Our fuel bill is cut in half, seconds and waste from bad edges and wrinkles are practically nil, and all our carpets finish to the correct width."

Labeling Act

(from page 95)

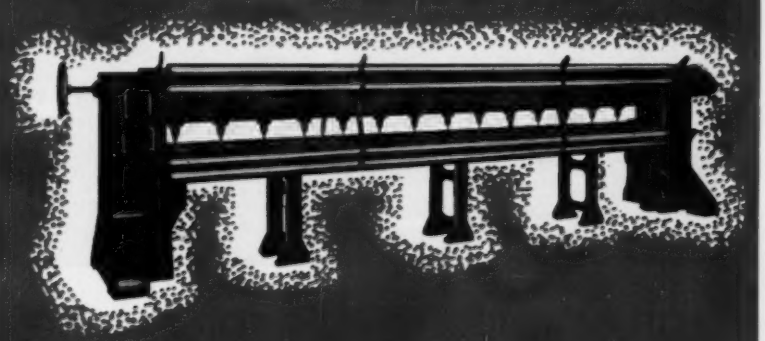
able to manufacturers as well as the Association.

In addition to several meetings covering various and sundry subjects having to do with the Act, the TTMA distributed copies of the Act to all manufacturers, prepared special interpretations of the Act which appeared in the 1960 edition of the TTMA Directory and mailed them to all interested parties, as well as issued several special bulletins covering specific aspects of the Act.

All during the time up until now, and in addition to the many reams of paper and thousands of words printed about the Textile Fiber Products Identification Act, the Association's mail box has bulged with letters and requests from manufacturers for clarification on certain aspects of the Act. Hundreds of telephone calls have been received from both far and near; and we have received personal calls by the score and have made several calls on manufacturers to aid them in getting ready for the March 3 deadline.

Now that the effective date is finally here and all textile products should be in compliance with the Act, the job of educating the industry still isn't over. We know there are still many problems to be worked out, and as time goes along these will mount. However, realizing that there will be new problems for a while yet gives us an edge, and through the continued excellent cooperation of our manufacturers these problems can be solved as they arise.

TEN-TEX
TUFTING MACHINES



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For further information use Handy Return Card, Page 225

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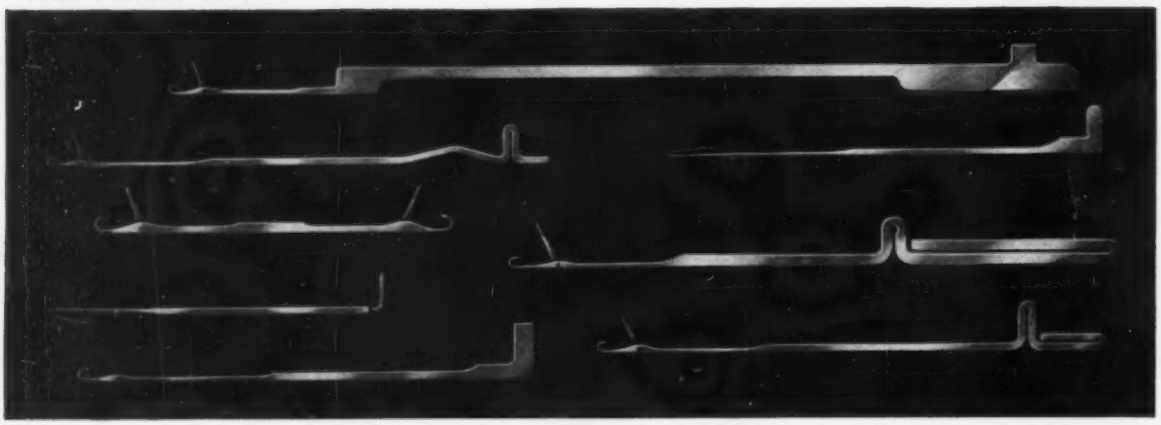
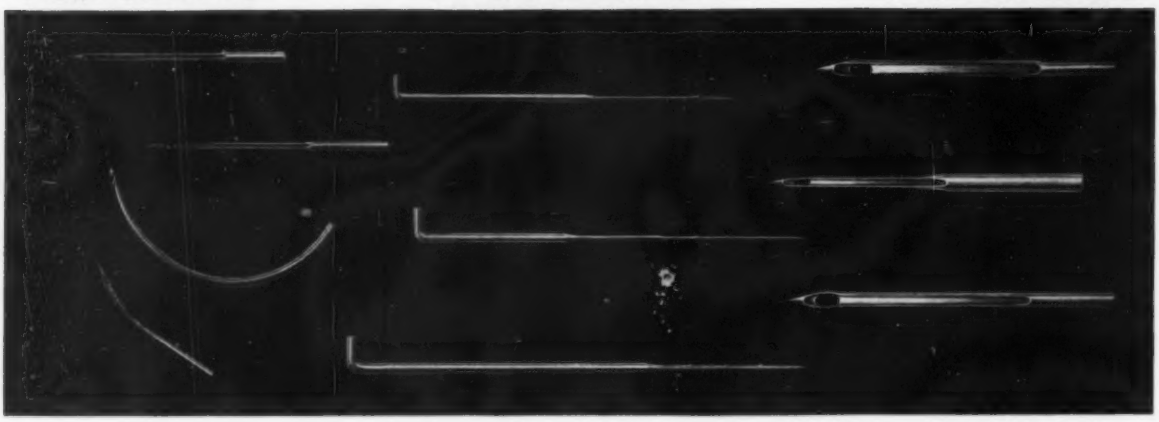


FOR SEWING FOR FELTING FOR TUFTING



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TORRINGTON MEETS EVERY NEEDLE NEED: SEWING · KNITTING · TUFTING · FELTING

501 Story

(from page 90)

selected for maximum lightfastness along with the required color. As a result of this selection, the wood tones—browns, beiges, sandalwoods—have ratings of 80 to 120 hours without a break in color, compared to the standard 40 hours for wool colors. A church red included in the style line has a record of more than 300 hours in the tester without a color break.

Because of the increased yarn area supplied by the crimping, a somewhat longer dyeing cycle is employed, all the additional effort needed to level the 501.

How to Clean Nylon Carpet. Nylon absorbs water reluctantly, and that property prevents its staining under the influence of many normal household spillings. It should be shampooed with a synthetic detergent, however, before such things as spilled ink, mustard, etc., dry.

Soap, if it isn't rinsed away completely, leaves a greasy scum on the fiber, a scum that destroys luster and serves as a "flypaper" for trapping and holding dirt. Don't use it! Mix a teaspoonful of the detergent in a cup of water and sponge the solution into the spot, always working toward the center of the stain. Pick this up with damp cloths and repeat until the stain disappears. If the pile is disarranged, blot it with dry cloths in the direction of the pile until it assumes a normal position. *Do not use chlorine bleaches nor mineral acids on nylon.*

While Barwick supplies the housewife with a written 10-year guarantee with each carpet, the firm restricts the carpet abuse to "normal household use" and gives the girls a word of advice about "normal" cleaning cycles.

A 501 carpet should be cleaned daily with a brush-type cleaner, given at least a weekly cleaning with a vacuum-type cleaner (to get the dirt that settles deep into the pile), and given a commercial cleaning when it assumes a lackluster appearance.

This fiber can take it on the chin and still snap back. In the Hilton Inn in El Paso, Texas, the 501 carpet was installed before one of the contractors finished with his work. His men rolled wheelbarrows over a portion of it, dropped plaster on it, and let the rain in on it. Still the carpet looked like new when cleaned in place. That is just one instance.

At the Texas State Fair last year 2½ million people walked over a Barwick 501 carpet that was laid in front of the Automotive Building for 17 days. When cleaned with ordinary home methods, the carpet retained its texture, recovered almost 100 per cent, and regained most of its luster.

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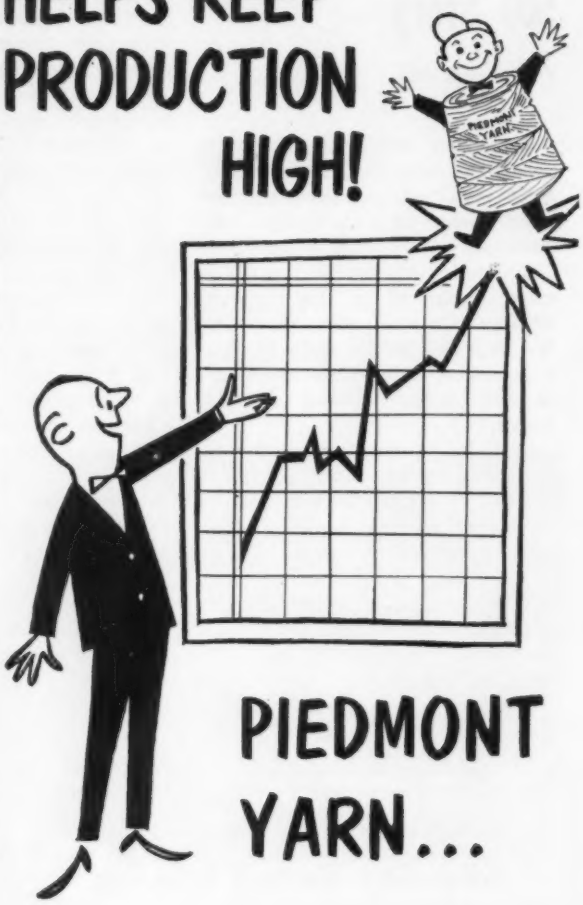

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We are plagued by underselling!

Proper selling could explode over-production myth

by Steele L. Winterer
President, A. & M. Karagheusian, Inc.

THERE ARE those who say that the carpet industry is plagued by over-production. I say to you that this is not so—*we are plagued by under selling.*

Many of us are convinced that proper retail presentation and selling could easily bring about a 50 per cent increase in our industry sales. Studies that have been made, for example, indicate that 37 per cent of all living rooms in private dwelling houses do not use carpets or rugs larger than 4 x 6 feet; 45 per cent of all dining rooms in private dwelling houses do not have carpets or rugs larger than 4 x 6 feet, and 78 per cent of all bedrooms are either bare or have small scatter rugs.

Added up, this comes close to 100 million rooms, and if we could sell a 9 x 12 rug, or the equivalent, for one half of these rooms we would sell 600 million additional square yards.

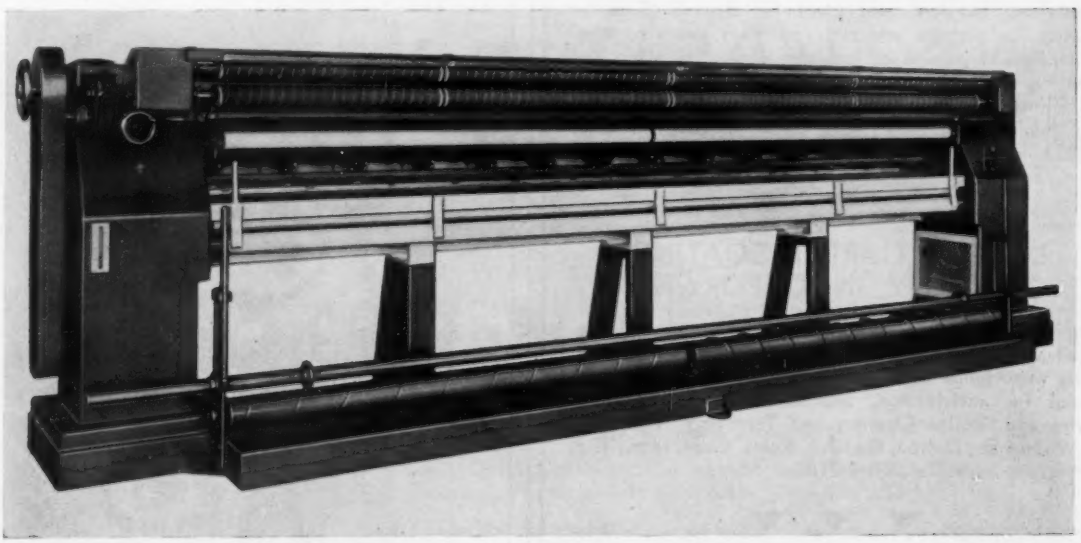
In 1959, the last year of the decade of the 1950's, our carpet industry is likely to sell 150 million square yards. Don't you think this market of 600 million square yards that already exists without building another house is justification for better products, better merchandising, and, above all, better selling?

This leftover market from the 1950's added to our growth potential of the 1960's offers a wonderful opportunity for us if we can convince more of the American public that carpets are essential to a comfortable home.

We, above all else, need improved retail display and selling. Many retail salesmen today do not take the time and trouble to enthusiastically tell their customers of the total contribution that our carpets and rugs can make to a home.

They assume that the customer

*Adapted from a speech delivered by Mr. Winterer before the Tufted Textile Manufacturers Association at Chattanooga, Tennessee.



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knows that they contribute beauty, quiet, easy care, and safety and concentrate on trying to emphasize all too often the advantages of price.

Brief History of Carpet Industry. Before considering specifically the tufting business and its progress during the fifties, it might be interesting to look further back over the progress and the changes that have taken place in the carpet industry since its beginning.

As you know, carpetings were made in the Near East and Middle East more than a thousand years before Christ, and even today Oriental rugs, as we know them, are still produced in that area and are respected the world over for their high quality and exceptional colors. These carpeting products were introduced into Europe at an early date, and France and the low countries began to follow the slow process of fastening and tieing in carpet tufts by hand.

For over five hundred years the making of carpets remained a skilled and restricted hand operation, but then with the industrial revolution, first the British, and thereafter the Americans, lent their business geniuses to the modern system of carpet weaving.

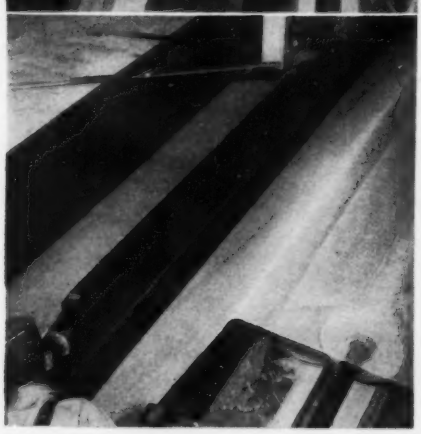
The British put carpet manufacturing on a systematized large scale production basis, and though the looms were still hand operated, they successfully converted an object of art gracing the castles of the nobility into a useful and available product for upper-class homes. The Americans, by adding power to the carpet loom, in turn transformed the "luxury of the elite" into the "common necessity" of all classes.

By the time the United States began to produce carpets, the basic styles and weaves of woven carpets had already been developed. Witness the fact that many weaves were named after European cities, such as Brussels, Axminster, and Wilton.

However, from the beginning of the American carpet industry until after the Civil War another type, known as ingrain, virtually dominated the production in this country. When an American spoke of carpeting in the first half of the century, he meant ingrain, a flat basket weave.

At the start of the twentieth century, Axminster and Wilton fabrics started coming into their own, and ingrain rapidly disappeared from carpet showrooms. For over a decade and a half before World War I, Axminsters and moderately priced Wilton fabrics dominated the field in designs and colorings which were largely florals and designs of Oriental origin.

In the decade of the 1920's the magic word of Broadloom made its appearance and more and more interest developed in seamless carpeting. Because the company that I am associated with vividly illustrates the style changes and the change in the American car-



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BY DALTON SHEET METAL CO., INC.

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(3) Convenient. Doctor Roll is on turret, therefore always the same distance from operator.

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(5) Quick Changing. Can change from foam to scrim in less than 5 minutes. Photos at left were taken 5 minutes apart.

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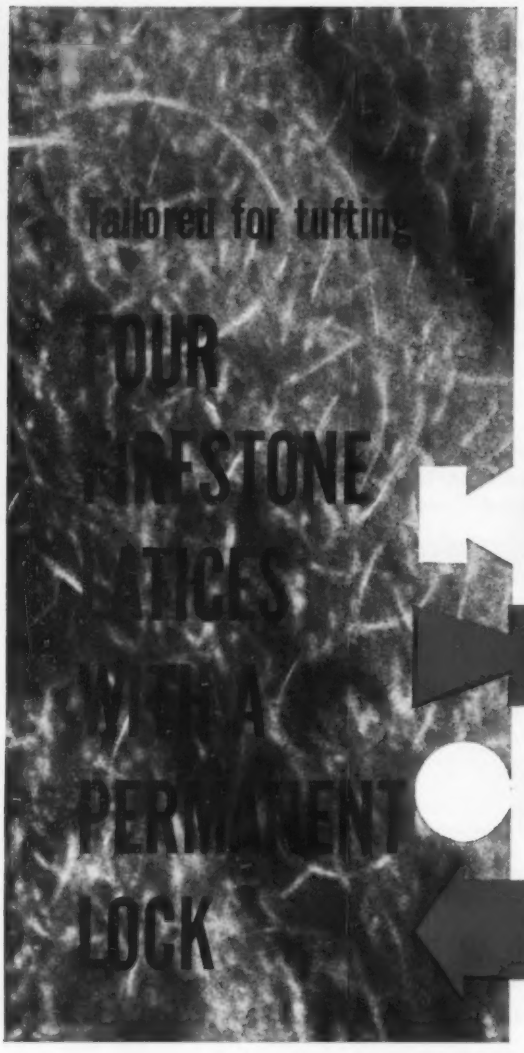

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MAKING THE BEST TODAY STILL BETTER TOMORROW

pet scene since 1899, I will sketch in our history.

Karagheusian's Background. In 1899 we started as importers of Oriental rugs from Persia. In 1940 we started manufacturing narrow Wilton carpet in Freehold, New Jersey. In the twenties we concentrated on bordered Wilton rugs, largely seamed, until we developed a good seller known as the Gulistan rug, which was made seamless on wide looms.

In the twenties we also started manufacturing yarn and Chinese rugs in Tientsin, China, the rugs finding a ready market here, both in authentic Chinese designs and French Aubusson designs. In this same decade we also entered the broad Velvet weaving field.

In the 1930's we started in broad Axminster, and—no doubt a surprise to many in this room—we started research on the tufting of wool carpet. M. Karagheusian, who was then president, had long felt that a speedier process of making carpet would inevitably be developed.

We applied for a patent in 1935, and on August 17, 1937, we received our first patent for a tufting machine. This early development work, which was laid aside during the war, was followed up in the late 1940's and helped pave the way for us to introduce one of the first, if not the first tufted wool carpet in 1954 in Albany, Georgia.

Now we are no longer in the importing field, as Oriental rugs find a very limited market. And today we manufacture and market Axminsters, Wiltons, Velvets, and tufted and knitted carpets. Essentially the styles vary a great deal from those we sold in the 1920's and the 1930's, with texture and color becoming an ever more dominant factor.

My purpose in highlighting my company's history, and in giving a little background of the carpet business, is to illustrate the change in style trends and acceptance of carpets over the years. It has been far from a static industry. It has gone through many changes and undoubtedly there will be many more to come. It has moved from the homes of the powerful and wealthy to become a basic requirement, and want, for all income levels.

Remarkable 30-Year Growth. If you had talked about tufting or knitting of carpets in the early 1920's, I am afraid you would have received but scant notice from your listeners. These two processes are two new additions to the method of carpet making. They are efficient. Unquestionably in the years ahead further developments will take place with both of these types of equipment, as they lend themselves to many variations as yet undeveloped.

It seems to me that the decade of the 1950's, in which the tufting industry made such tremendous strides (rising from 9 per cent of the yardage in 1951 to 59 per cent in 1959), can be termed

Continued on page 121

ALL FACTORS CONSIDERED . . . IT'S

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(from page 119)

the decade in which tufting came of age. We learned how to reinforce the back of tufted fabrics. We learned how to lock the tufts in securely. We in the tufting industry improved our processes and gained steadily on the market.

This year, for the first time in several years, woven carpets increased in volume at approximately the same rate as tufted carpets. And it is an indication that perhaps tufting as it is now known has reached its plateau.

However, the final determination of the position of tufted carpets will be made on the floors of our American homes. If we individually resist the pressure to produce substandard products that are priced lower and lower, we will perform our industry and ourselves a service, as there is a point at which minimum carpets cannot perform either in wear or appearance while in use. If we succumb to this pressure and produce the products that are inadequate, consumers will seek out another type when they return to the market.

"Beware of Trading-Down." As we look back on the different processes that have been used to make carpets, it is evident that all of them suffered at one time or another, due to the production of inadequate products. For example, Brussels carpet was a pretty satisfactory type of carpet until it was traded down so low that it no longer gave the consumer satisfaction.

One of the fine weaves, the Axminster, has never completely recovered from the hurt it suffered by being traded down and identified with the 4-row rug. The Axminster weave is a wonderful weave, and some of the finest and most beautiful carpets can be and are made by that process.

The name Wilton in its early history stood for the best quality product in the country, and of course Wilton looms today are still producing some of our finest carpets, but the flood of cheap imported Wiltons (and some of the domestic products) are not helping the stature of Wiltons.

My reason for mentioning these is that in this newer process of tufting we should strive to produce only those products that will give consumer satisfaction. By its very nature the tufting process lends itself exceedingly well to the production of modest priced carpets, but we should choose our fibers wisely and use enough of the fiber to insure satisfaction for the consumer.

Tufting, of course, also lends itself to the production of very ingenious and unusual effects and carpets of luxury type, and this field is wide open and limited only by the ingenuity of your minds and abilities.

A Close Look at 1959. As we come to the end of the 1950's, we in the carpet industry are winding up 1959 with a flourish insofar as yardage volume and dollar volume is concerned—1959 will undoubtedly mark the highest

SEASONAL PEAKS

can be taken in stride when you enjoy the financial services of L. F. Dommerich. You can prepare for peaks well in advance, buy advantageously, produce without overtime, ship on favorable terms, all with cash provided under the Dommerich plan.

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Carpet backings made with DYLEX K-40 have a soft "hand," *and stay flexible.* DYLEX K-40 gives you superior bond and adhesion . . . more tuft-holding strength in both cut and loop pile. Because of its exceptional bonding strength, DYLEX K-40 can also be used as a scrim adhesive.

DYLEX K-40 saves you money. Since there is no vulcanizing, you can use simpler, less expensive mixing equipment. You can use a wider range of dyestuffs because there are no accelerators . . . no danger of a reaction with certain dyes. And the compound has unlimited storage life because it doesn't depend on a chemical reaction to set it.

See for yourself. Try this amazing new product in your carpet compound, or send for a sample piece of carpet backed with DYLEX K-40. Check it for softness, note its flexibility, try to crack it, test its aging qualities. Find out how DYLEX K-40 latex makes better carpet backings at less cost. Write Koppers Company Inc., Plastics Division, TI-40, Pittsburgh 19, Pa. Offices in Principal Cities. In Canada: Dominion Anilines and Chemicals Ltd., Toronto, Ontario.

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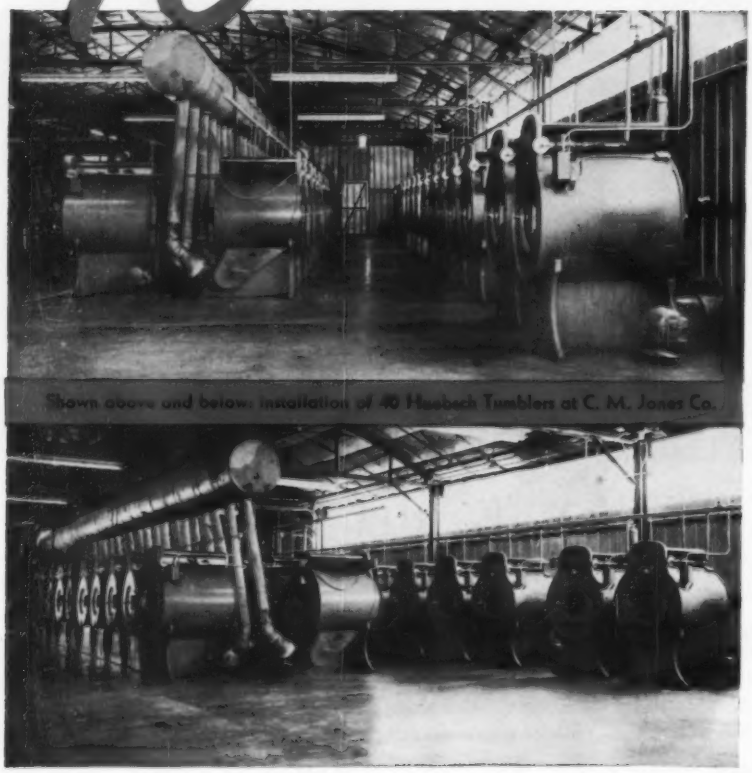

Shown above and below: installation of 40 Huebsch Tumblers at C. M. Jones Co.

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The installation of Huebsch Tumblers pictured at the left (40—count 'em—40) is just one of many Huebsch multiple installations used by the tufted textile industry. And there are good reasons! Big, rugged Huebsch Tumblers, in the big 42" size, take large loads and dry them fast. Original cost is low . . . operating and maintenance costs are even lower. (Available in steam or gas heated models.)

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level of shipments which the carpet industry has ever known.

Interestingly enough, family consumption of carpets will be up to 2.7 yards per family as compared with 2.4 yards per family in 1958. During 1958, family formations increased at a greater rate than did carpet shipments, but this year we kept pace. The share of the national income devoted to carpets increased by ten per cent.

Another outstanding feature in 1959's situation is the relative increase in the use of wool. In 1958 wool amounted to only 48 per cent of the total fiber consumption. For 1959 it looks as if it will rise to 57 per cent. Wool consumption in tufted carpets has accounted for most of this increase.

The carpet industry will consume in excess of 170 million pounds of wool in 1959, and if it had not been for the carpet wool bill which was enacted into law by Congress in 1958, this quantity could never have been available. This bill expires June 30, 1960, and must be renewed prior to that date if the industry is to continue to have access to much needed carpet wools.

It is significant to note that the use of acrylics and nylon are also increasing this year—they currently amount to an estimated 15% of the total fibers consumed. This growth is very important to our industry, as they are good fibers and they provide a governor on world wool prices.

Where Do We Go From Here? Now as we look ahead to the decade of the 1960's, where are we going? What is our opportunity? And, what can we do about it?

On the plus side, the population of the United States is projected to rise from 175 million people to 200 million people. In other words, 25 million more people will be added during the sixties.

While this population bulge will be heaviest on both ends, that is, more youngsters under 18 and oldsters over 64, all other age brackets will also show tremendous increase. At present there are 16 million in the 18 to 24 age or family formation group. By 1965 there will be over 20 million, and by 1970 this age group will equal 25 million. This is a 50 per cent jump over 1959.

We have already seen tremendous changes take place in the family income. In 1950, the average family income was $3,300; in 1959 it is estimated at $4,850; by 1970 it is expected to be $6,500.

So, as we look into the sixties we are unquestionably faced with a rapidly expanding population and a rise in income to that population. I, however, must emphasize that while this will be the trend during the sixties, it does not mean that business will necessarily follow the direct population growth.

We may have periods during the sixties when we will catch our breath—sometimes called recessions—but the trend is onward and upward and that is the dominant and most important factor after all.

There are those who say if the work week can be maintained and

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not cut back, as many union leaders are pushing for, our national growth can be greater and our economy expanded at a more rapid rate than we have heretofore dreamed possible.

I am not venturing any guesses in that field, but it is interesting to note that all prognosticators agree that steady growth is inevitable. Their only argument seems to be over the rate of growth, and their only pessimism seems to be occasioned by the possibility of war or such.

Fortune magazine, for example, estimates that we will add 14½ million housing units during the next ten years, or an average of 1,450,000 housing units each year. And, of course, commercial building is still projected at a very high rate.

However, again it doesn't just follow that we in the carpet industry will have more business than we will know what to do with. There will be a host of new consumer products, many of which aren't even on the drawing boards today, that will compete for the consumer disposable income. And if we wish to get our share, we will have to have new, interesting carpets and improved carpets made by the most efficient methods possible.

If we are to take advantage of this great opportunity we need a number of improvements in the presentation of our products. First of all, we need a great deal more advertising. We need better advertising. And we need advertising that will stress the advantages of having carpet, such as the acoustical advantages, the low maintenance costs, the safety of carpet, and the warmth and comfort it can give to a home.

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The plastic is thermosetting, which means that it does not soften when heat is applied, and is made by applying heat and pressure to layers of paper or fabric impregnated with a synthetic resin.

Close-up of a pattern drum covered with the Synthane plastic tubing into which the pattern to be tufted is engraved.

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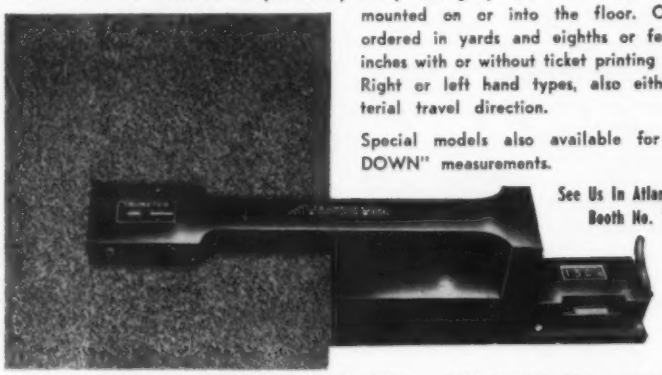

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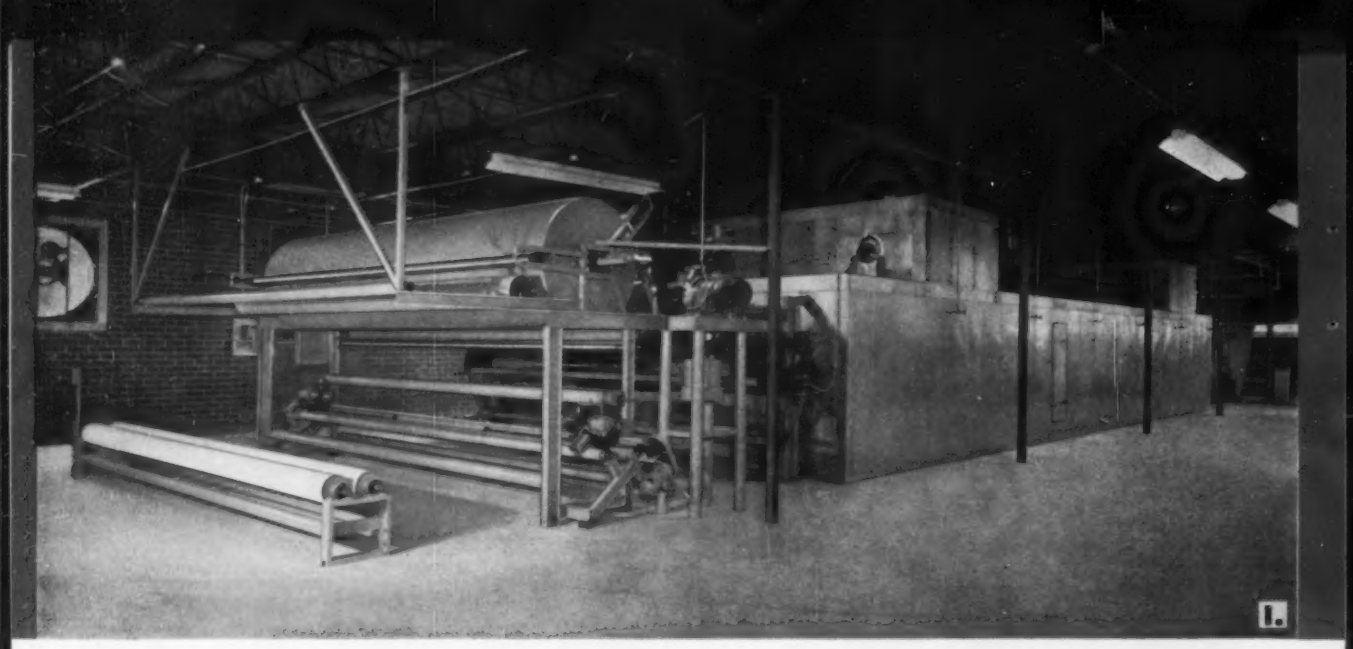
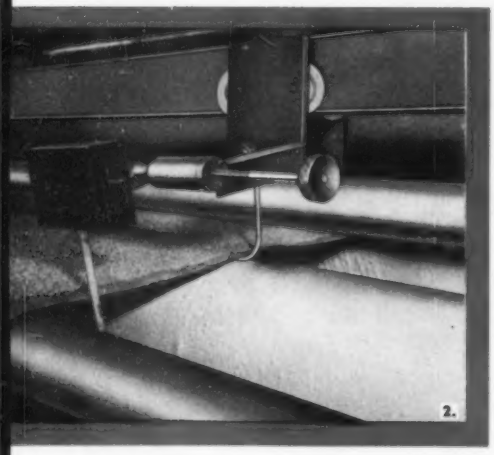


Carpet Drying and Finishing Machines



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The following photos highlight the Gowin Carpet Drying and Finishing Machines in action:

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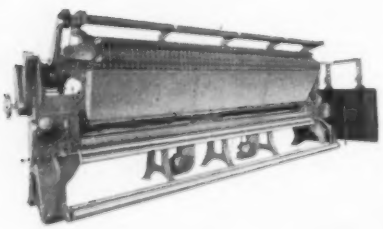
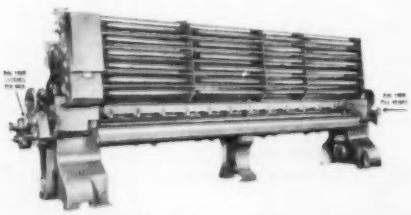
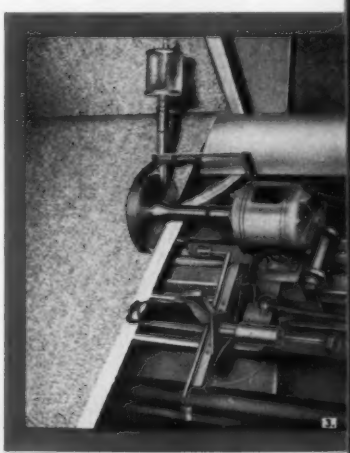
2. Close-up of the Selvage Lifters.
3. Close-up of the Selvage Trimmers.



Cobble 216" Single End Control Scroll Type Pattern Machine.



Super Tufter 208 Dial Type Yardage Machine Equipped with Roll Type Pattern Attachment



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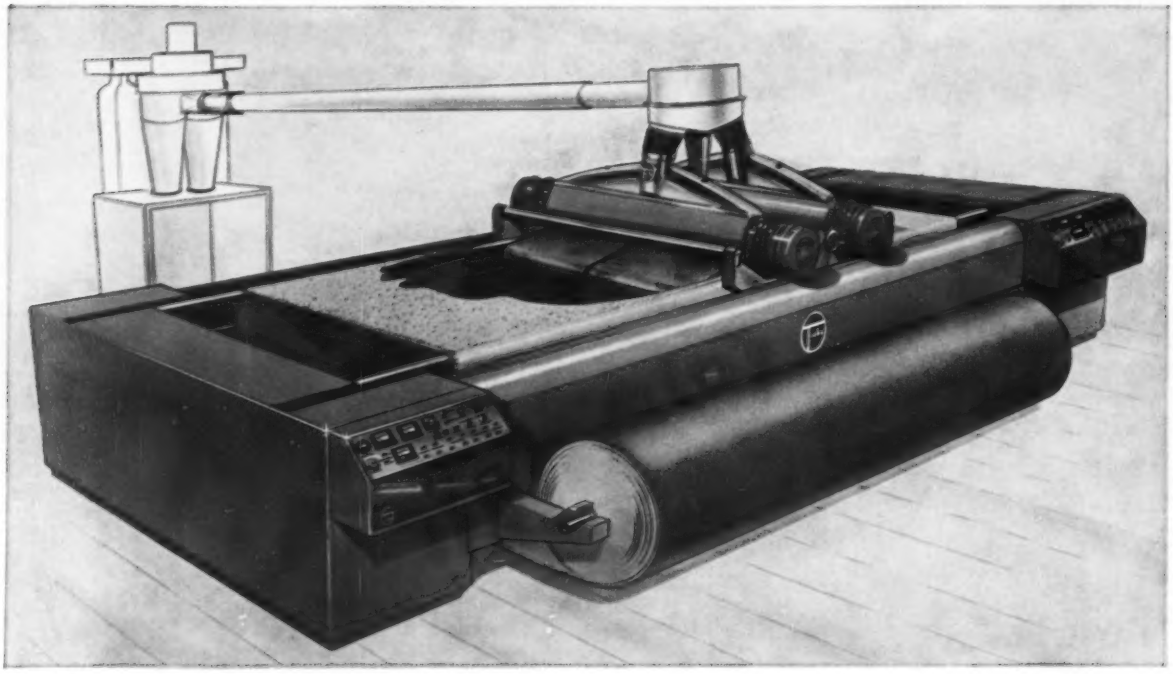

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Do your cleaning at the picker

SRRL carding cleaner makes clean laps from roughly harvested cotton at full picker production

by George J. Kyame
and William A. Latour
Southern Regional Research Laboratory[1]
Exclusive

THE HARVESTING of cotton by mechanical means has been increasing steadily during the past ten years. The quantity harvested in this manner has risen from 6% in 1949 to 34% in 1958 (1).[2] An additional 23% harvested by hand-snapping during the past season means that more than half the 1958 cotton crop was roughly harvested and therefore may contain excessive trash, some of which remains in the cotton after ginning. The removal of this trash is of major concern to textile producers, who have to maintain quality production at low cost.

For a number of years the work of the Machinery Development Investigations Group at the Southern Regional Research Laboratory has been directed toward finding a solution to this problem; this phase of the Laboratory's research program has resulted in two well-known machines, the SRRL Opener (2) and the SRRL Opener-Cleaner (3).

A third machine, first reported in 1955 (4), is the SRRL Carding Cleaner. Tests at the Laboratory showed this machine capable of an average cleaning efficiency of 50% at 435 lb/hr production, with no damage to the cotton and with a remarkably low "lint-in-waste" content of about 7% (5).

The Carding Cleaner is the outcome of an investigation to determine the effect of substituting licker-in-type cylinders for the beaters in conventional cotton opening and cleaning machinery. In early experiments with a machine patterned after a down-stroke-type cleaner (4), two factors affecting the opening and cleaning of cotton were revealed:

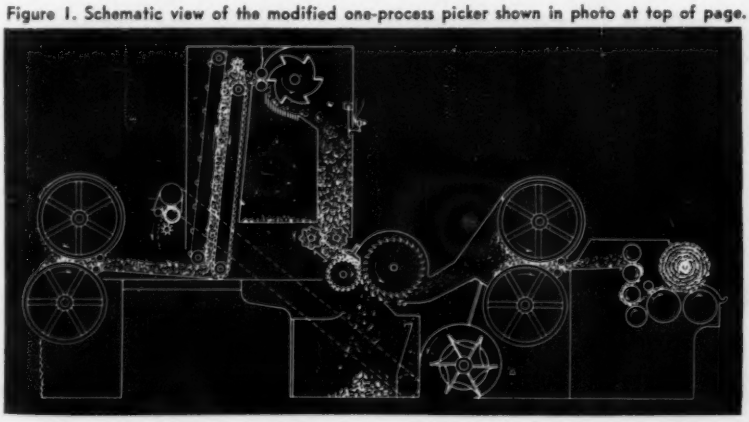
1. Plucking is a common occurrence with conventional feed systems.

2. Full advantage is not being taken of the triangular grid bars used to dislodge the trash from the cotton.

Plucking was virtually eliminated by means of a special licker-in-type feed roll which held back the cotton, allowing the carding beater to open it to a degree approaching the card web. The grid bars were made to function more effectively by increasing the space between the bars, and by reorienting them so that their thinnest edge is presented to the cotton carried by the beater.

The high degree of opening achieved with the new feed roll suggested the finisher picker as the ideal machine to make use of the findings of the preliminary investigation. Accordingly, the finisher stage of a 1914 model

Figure 1. Schematic view of the modified one-process picker shown in photo at top of page.



[1]One of the laboratories of the Southern Utilization Research and Development Division, U. S. Department of Agriculture, Agricultural Research Service. It is located at New Orleans, La.

[2]Numbers in parentheses are references at the end of this article.

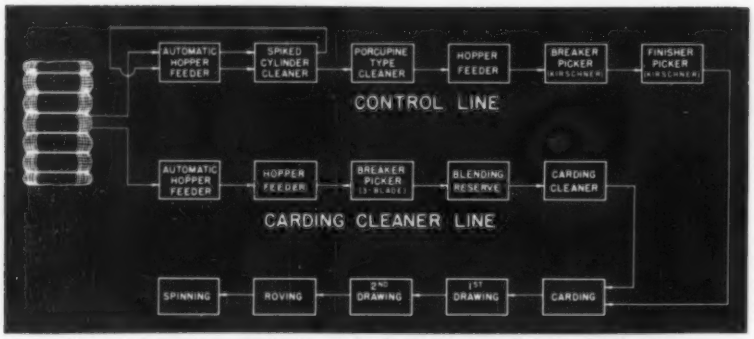


Figure 2. Processing organization at the Southern Regional Research Laboratory.

Kitson[3] two-beater, one-process picker was modified as shown schematically in *Figure 1.*

Description and Operation of the SRRL Carding Cleaner. The original Kirschner carding beater was replaced with a cylinder of equivalent diameter, clothed with a licker-in-type wire having 11 teeth per inch, groove-wound at 8 turns to the inch. The pedal evener motion feed system was removed, and in its place a licker-in-type, anti-pluck feed roll was installed. The 9" -diameter feed roll is clothed with 15 teeth-per-inch wire wound at 6 turns to the inch.

The feed roll is unique in that the wire is wound into two separate spiral grooves so that the teeth in one groove point in the opposite direction to the teeth in the other groove. The forwardly inclined teeth advance the cotton from the blending reserve delivery to the carding beater cylinder. As the carding beater strips the feed roll, the cotton is combed across the backwardly inclined teeth and is thoroughly opened.

The resulting semi-carded cotton is then easily cleaned by a set of four triangular grid bars. The bars are spaced two inches between centers and are set according to the optimum conditions determined in the preliminary investigations. Although the relatively wide spacing of the bars improves trash removal, more free lint falls with the trash. Lint losses from this source however, are minimized by a simple lint recovery system which draws a gentle stream of air across the top of the trash box to catch the falling fibers. The recovered fibers are then deposited onto the breaker lap for reprocessing, or they may be discarded. The recovery system will be described more fully in a forthcoming paper.

The most important function of the picker is to make uniform laps from clean, open cotton. Because of the removal of the pedal evener motion, lap uniformity in the Carding Cleaner is dependent to a great extent on the conditions existing in the reserve box of the blending reserve unit. These conditions include the magnitude of fluctuations in the level of cotton in the box, the homogeneity of the cotton, and the uniformity of distribution throughout the box.

Level fluctuations were reduced by replacing the slow-acting, belt-shifting mechanism controlling the cotton feed system, with a faster-acting, friction clutch (6). To reduce the fluctuations still further, the rake-type, level-sensing gate was replaced with a more sensitive sheet aluminum gate.

Limited attempts to control the homogeneity and distribution of the cotton in the reserve box were

[3]Trade names are used for information only, and do not constitute an endorsement of the product mentioned.

TABLE 1. Effect of the Carding Cleaner Line on Waste Removal

Processing Line	Cleaning Efficiency[1] %	Waste Removed %	Lint in Waste[1] %	Lap Production Rate lb/hr
Acala 4-42, SLM, 1-1/16", 74% Maturity (NaOH), 3.9 Micronaire Reading				
Control	33.1	1.91	42.6	375
Card. Clr.	53.5	1.87	16.8	321
Paymaster, SLM, 31/32", 91% Maturity (NaOH), 4.9 Micronaire Reading				
Control	19.1	1.27	40.6	381
Card. Clr.	45.3	1.25	20.4	314
Deltapine 15, LM, 1-1/16", 81% Maturity (NaOH), 4.3 Micronaire Reading				
Control	46.4	2.87	28.0	381
Card. Clr.	59.1	2.50	17.8	322
Average				
Control	32.9	2.03	37.1	379
Card. Clr.	52.6	1.87	18.3	319

[1]Determined with a Shirley Analyzer.

TABLE 2. Waste Removal in the Carding Cleaner Unit

Variety of Cotton	Cleaning Efficiency[1] %	Waste Removed %	Lint in Waste[1] %
Acala 4-42	45.2	1.18	9.8
Paymaster	39.5	0.77	11.4
Deltapine 15	49.9	1.44	13.1
Average	44.9	1.13	11.4

[1]Determined with a Shirley Analyzer.

not completely successful, but some relationship was observed between lap uniformity and the amount of preopening the cotton had received. It is believed, therefore, that the desired control might be achieved by using a continuous, self-doffing, pin-beater instead of a blade beater in the blending reserve unit. A pin-beater, unlike a blade beater, would deliver the cotton in the form of small, individual tufts which are more apt to deposit evenly in the reserve box.

It is further believed that a pin-beater would not only reduce the amount of preopening required, but also increase the cleaning efficiency of the Carding Cleaner. However, because of time limitations, the blending reserve beater was left unchanged for these tests.

Where lap uniformity is concerned, no amount of control over the system feeding the picker can compensate for uneven distribution of the cotton on the lap-forming condenser cages. The extra fluffiness of the cotton delivered by the Carding Cleaner beater makes the layer deposited on the cages highly susceptible to disturbance by air currents. Special design of the passageway between the beater and the cages minimized detrimental air movements. Experiments have shown that the Carding Cleaner requires no evener motion to produce laps that compare favorably with those made on conventional machinery.

Laboratory Results. In recent pilot-scale comparisons of the Carding Cleaner with conventional textile mill equipment, three varieties of cotton were used, and three replicate tests were made with each cotton on each cleaning line. The processing organization is shown in *Figure 2*.

Because the number of cleaning machines at the Laboratory was limited, the control line was made more nearly comparable to the average textile mill line by passing the control cotton twice through one of the cleaning machines. Thus, in the control line, the cotton from the bale was fed from a hopper to a spiked-cylinder cleaner, collected at a condenser, brought back to the hopper, and reprocessed through the entire line.

TABLE 3. Effect of the Carding Cleaner Line on Carding

Processing Line	Neps per Grain[1]	Card Waste		
		Strips %	Motes & Fly %	Total %
		Acala 4-42		
Control	5.7	3.73	1.97	5.84
Card. Clr.	5.7	3.44	1.75	5.45
		Paymaster		
Control	5.7	3.44	1.91	5.64
Card. Clr.	5.1	3.36	1.96	5.66
		Deltapine 15		
Control	5.2	3.29	2.19	5.75
Card. Clr.	5.2	3.13	2.13	5.47
		Average		
Control	5.5	3.49	2.03	5.74
Card. Clr.	5.3	3.31	1.95	5.53

[1]After 21 lb production

For the Carding Cleaner line, cotton from the bale was preopened in the above-mentioned hopper and then transferred directly to the hopper of the modified, one-process picker. The laps from both lines were carded at 12 pounds per hour into 55-grain sliver which was drawn twice, and then processed into 4.2 hank roving.

The Acala and Deltapine rovings were spun into 28/1 yarn, while the shorter-fibered Paymaster was made into 22/1 yarn. Samples were taken at various stages of the

TABLE 4. Effect of the Carding Cleaner on Fiber Properties

Sample	Length Distribution[1]			Tensile Strength[2]
	UQL in.	ML in.	CV %	1000 psi
		Acala 4-42		
Raw Stock	1.16	0.94	32	85.4
After Control Line	1.14	0.90	34	87.7
Before Card. Clr.	1.17	0.95	32	86.8
After Card. Clr.	1.17	0.93	34	86.3
		Paymaster		
Raw Stock	1.12	0.90	34	85.0
After Control Line	1.10	0.85	38	84.5
Before Card. Clr.	1.11	0.89	34	85.0
After Card. Clr.	1.09	0.86	37	85.0
		Deltapine 15		
Raw Stock	1.17	0.94	34	78.4
After Control Line	1.12	0.86	39	79.0
Before Card. Clr.	1.16	0.92	37	80.5
After Card. Clr.	1.14	0.88	39	80.8
		Average		
Raw Stock	1.15	0.93	33	82.9
After Control Line	1.12	0.87	37	83.7
Before Card. Clr.	1.15	0.92	34	84.1
After Card. Clr.	1.13	0.89	37	84.0

[1]Suter-Webb Fiber Array
[2]Pressley, "O" Gauge

processing operation for testing. The results of these tests are given in the accompanying tables.

In *Table 1* it is seen that the Carding Cleaner line removed 45-59% of the trash originally present in the raw cotton, whereas the control line removed 19-46%. Both cleaning lines removed approximately the same weight of waste; the waste removed by the control line contained 1½-2½ times as much lint as did the waste from the Carding Cleaner line. This, and other comparisons between the two lines, must be considered in the light of the fact that the control line was somewhat unconventional and operated at about 19% higher production.

The contribution of the modified finishing stage to the overall efficiency of the Carding Cleaner line is shown in *Table 2*. In this table, the cleaning efficiencies were computed on the basis of the trash content of the cotton in the reserve box, and not on that of the raw stock as was done in *Table 1*. It is seen that the modified finisher stage accounts for the removal of 40-50% of the more difficult-to-remove trash left in the cotton that had already been through the hoppers, breaker picker, and blending reserve.

In *Table 3*, no significant change in nep count is seen. However, a small, but consistent, reduction in card strips is noted. This same reduction was observed in earlier tests (5).

No damage is done to the fiber by either line. This is seen in the Suter-Webb array data given in *Table 4*. *Table 5* shows no significant differences in yarn strength, single strand or skein, yarn uniformity, short or long term variations, and yarn grade.

A Uster Lap Varimeter, installed only in the Carding Cleaner line, gave "U" values that averaged from 3.1% to 3.6% for the three cottons. These values fall between Uster standards of "average"—3.6% U, and "even"—2.4% U. It is estimated from experience that an "average" lap is one that does not vary more than ± ⅜ oz per yard, while an "even" one varies no more than ± ¼ oz per yard.

Summary and Conclusions. Evaluation of the SRRL Carding Cleaner under laboratory conditions indicates that this modification of the finisher section of a one-process picker enables the picker line to remove 50% of the trash in cotton, with a negligible loss of lint. There is no evidence of fiber damage, no increase in neps, and no impairment of yarn properties. The laps produced are well-felted, satisfactorily uniform, and card with about 5% less strips than do conventional laps.

It appears possible that the installation of the Carding Cleaner in both stages of a two-beater, one-process picker could provide sufficient cleaning to satisfy the requirements of most mills. The opening room would then be limited to the bale opening and blending equipment needed to prepare the cotton for processing in the picker room.

The Carding Cleaner is covered by U. S. Patents Nos. 2,810,163 and 2,825,097, which are licensed by the Department of Agriculture on a nonexclusive, royalty-free basis. Engineering specifications and additional information may be obtained from the Southern Regional Research Laboratory, P. O. Box 19687, New Orleans 19, La.

Acknowledgment

Space does not permit listing individually the names of all who assisted in the development and evaluation of the

TABLE 5. Effect of the Carding Cleaner Line on Yarn Properties

Processing Line	Single Strand		Skein	Yarn Uniformity[1]		Yarn Grade
	Yarn No. X Brk Load oz	Elongation %	Yarn No. X Brk Load lb	@ 8 ypm CV %	@ 50 ypm CV %	
			Acala 4-42, 28/1 yarn			
Control	309	6.7	2493	19.3	19.5	C+
Card. Clr.	321	6.8	2481	20.0	20.2	C+
			Paymaster, 22/1 yarn			
Control	282	7.0	2275	18.8	18.9	C+
Card. Clr.	281	6.9	2272	18.7	18.8	C+
			Deltapine 15, 28/1 yarn			
Control	275	6.9	2218	20.5	21.3	C+
Card. Clr.	276	7.0	2240	19.9	20.2	C
			Average			
Control	289	6.9	2329	19.5	19.9	C+
Card. Clr.	293	6.9	2331	19.3	19.4	C+

[1]Determined with a Uster Yarn Evenness Tester

Carding Cleaner. The authors are especially indebted to those members of the Cotton Mechanical Laboratory who designed the tests, processed the test lots, determined some of the yarn properties, and analyzed the data.

They also wish to express their appreciation for the work of the Product Evaluation Group in determining fiber and yarn properties.

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Textile research conference dates and program

■ THE 1960 Gordon Research Conference on textiles will be held July 11 to 15 at Colby Junior College, New London, N. H., according to an announcement from the conference director, W. George Parks.

With Fred Fortress serving as chairman and H. J. White as vice-chairman, the program is as follows:

July 11—A. B. Craig: Wet spun acrylic fiber structure and physical properties as a function of coagulation system. W. F. McDevit: Structure and properties of polyamide fibers.

July 12—Ian Ward: Molecular motion in polyethylene terephthalate and related polymers. C. H. Bamford: Title not known.

July 13—H. Zollinger: The mechanism of dyeing polyamide fibers. Z. A. Rogowin: New methods of modification of cellulose fiber properties.

July 14—Don Gagliardi: Different behaviour of cotton, modified cotton, and rayon in new crosslinking reactions. Ludwig Rebenfeld: Effect of chemical treatment upon the stress-strain properties of selected cotton fiber types.

July 15—C. E. Reese: The relationship of fiber and fabric properties to wash-and-wear performance of poly fibers.

Registration. Attendance at the conference is by application, Mr. Parks pointed out. Individuals interested in attending are requested to send their applications to the director at least two months prior to the date of the conference. All applications must be submitted on the standard application form which may be obtained by writing to the office of the director at the University of Rhode Island, Kingston, R. I.

Here's another way to make fabrics more appealing

■ UNUSUAL decorative effects may be obtained on woven, nonwoven, or knitted fabrics by spraying them with vinyl plastic in the form of a liquid dispersion, according to an announcement by Flexible Products Co., manufacturer of the vinyl dispersions.

The technique, known as veil-spraying, results in a random line or a spatter pattern, depending on the sprayhead used, which may be varied widely in density, width, thickness, continuity, and general texture. The detail is controlled by the viscosity and flow properties of the compound, and by the adjustments of the spray gun.

On heating in the range of 310-450 F the plastic fuses to the fabric in a permanent pattern that can withstand washing and dry cleaning, and can be ironed on the "wrong" side.

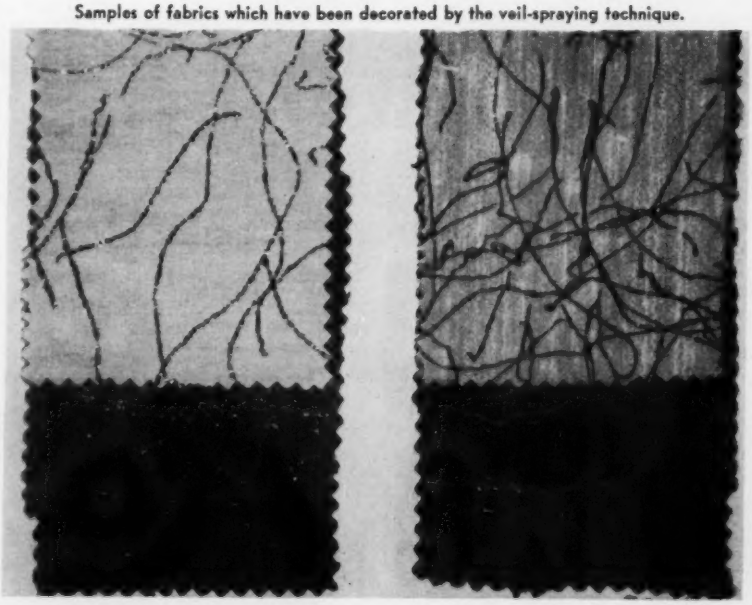
Colors of any shade, including metallic, may be used. Additional interest can be obtained by sprinkling Metalflake (a Dobeckmun Co. product) on the pattern before fusion to give a glitter effect.

Many fabric applications are being developed to take advantage of these unusual decorative effects as well as the increased durability imparted to the fabric without sacrificing hand, drape, or breathability, the manufacturer said. Among these are: drapery and curtain fabrics, upholstery and slip-cover fabrics, tickings, outerwear fabrics, lingerie, robes, glove fabrics, spreads, lampshade fabrics, linings, and wall coverings.

The vinyl dispersions are applied with DeVilbiss hand-operated or automatic spray guns equipped with decorator heads. Although the detail made by a single head is an abstract swirl (or spatter), a repetitive, reproducible pattern can be developed by the use of multiple spray heads. The amount of material used varies with the design and averages 0.5-1 oz/sq yd. Coating speeds can be as high as 100 ypm.

Usually the spray application can be integrated into present operations of printing or finishing without difficulty, it was explained. In some cases, however, it may be necessary to provide for somewhat higher temperatures than those available with present equipment. Electric or gas-fired radiant infra-red heaters are said to be useful in this situation.

Samples of fabrics which have been decorated by the veil-spraying technique.



THE LANNOM Manufacturing Co., Tullahoma, Tenn., not only produces baseballs, softballs, and cork balls in larger quantities and varieties (54 models) than any other manufacturer, but it prepares its own cork-and-rubber cores, spins its own woolen yarns, and tans its own horsehides for the covers. Then, to prevent being accused of preoccupation, the firm makes Thru-White welting at Tullahoma and makes dress gloves at its associate firm, Craig Gloves, Inc., at Lynchburg, Tenn., from lambskins processed at Tullahoma. The centers are made at Fayetteville, Tenn.

Thus, if President Charles E. Parish runs low on a commodity, he can get it delivered almost instantly by fork truck. The company buys the 20s/2 combed Peeler cotton yarn used as a final wrapping between the woolen yarn and the cover. Likewise the 10s/5 polished sewing yarn, made from Egyptian SAK cotton, is purchased.

The woolen mill consists of a duster, picker, two storage bins, a three-section card, spinning frame, twister, and a winder, with room left over to increase the yarn capacity as the need arises. At present, the plant turns out approximately 3500 pounds of eight- and ten-cut yarns weekly. And that, considering that a baseball weighs only five ounces (including core, woolen yarn, cotton yarn, and cover) represents a considerable number of baseballs. But the total output is not to be equated to that amount of yarn, for some styles have compressed felt "innards."

Lannom's best ball is made of virgin wool, a blend of ⅜ and ¼ bloods, 3.5″ fiber approximately, a light layer of the combed cotton yarn already mentioned, and a cover made from the hide of a Percheron or Clydesdale horse. These are imported hides, coming from France, Belgium, Sweden, and Holland, for the domestic supply is practically nil, and the available ones are usually too thin (3/64″ is minimum) for the purpose.

The horsehide cover takes almost any amount of pounding from the bat, will not scuff easily nor stretch and loosen, and to a remarkable degree it resists marking from being fouled into home plate or from being bounced off a bleacher seat, light tower, etc.

Only the premium baseball is made entirely of virgin wool, so shoddy (here being spun) is used to varying extents in other grades of balls. This frame spins about 3500 lb weekly.

The baseball gets its bounce from its yarns, not from the material in its center. It is for this reason that Lannom makes its premium baseball (No. 912 C) of virgin wool of a fiber length sufficient to reach approximately one-third the way around the full-size ball. This stretch remains locked in the yarn as the ball is deformed under the terrific punishment a power hitter can give it—shoddy or cotton yarns lack such resiliency, so they often break under the pounding and leave lop-sided balls. The core used for all of Lannoms' wound balls is a cushioned-cork center, adopted for its sales advantage and for its density.

As for cores, President Parish has this to say: "A wooden core will give as much distance as any kind of core—we have conducted extensive tests on that item—as long as the best of yarns are used. But try selling a baseball with a wooden core!"

As for baseball progress: "It is not fair to compare today's hitters with Babe Ruth, for Babe had to clout a ball that contained too much cotton yarn and which often collapsed under Babe's power. From today's ball, Babe could have gotten 340 feet from a tap that netted him only 300 feet in his day. Thus today's "rabbit ball," introduced about 1932, made the hitter look extremely good and the pitcher look rather bad.

"My firm pioneered the raised seam that restored a measure of the pitcher's prestige. It was as simple as changing the sewing thread from 10s/3 to 10s/4, then eventually changing it to the present 10s/5. The raised seam gives the pitcher only a slight swelling against which he can tighten his fingers to impart more spin to the ball than the flat seam offered.

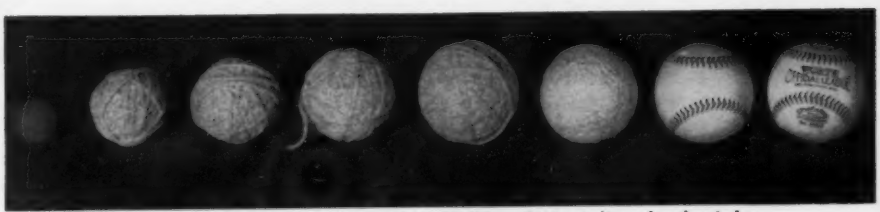
"Now, that is standard construction along with the nine-inch circumference and the five-ounce

Twister, creeled with spinning bobbins, turns out the three and two-ply yarns.

WOOL puts the bounce in these baseballs

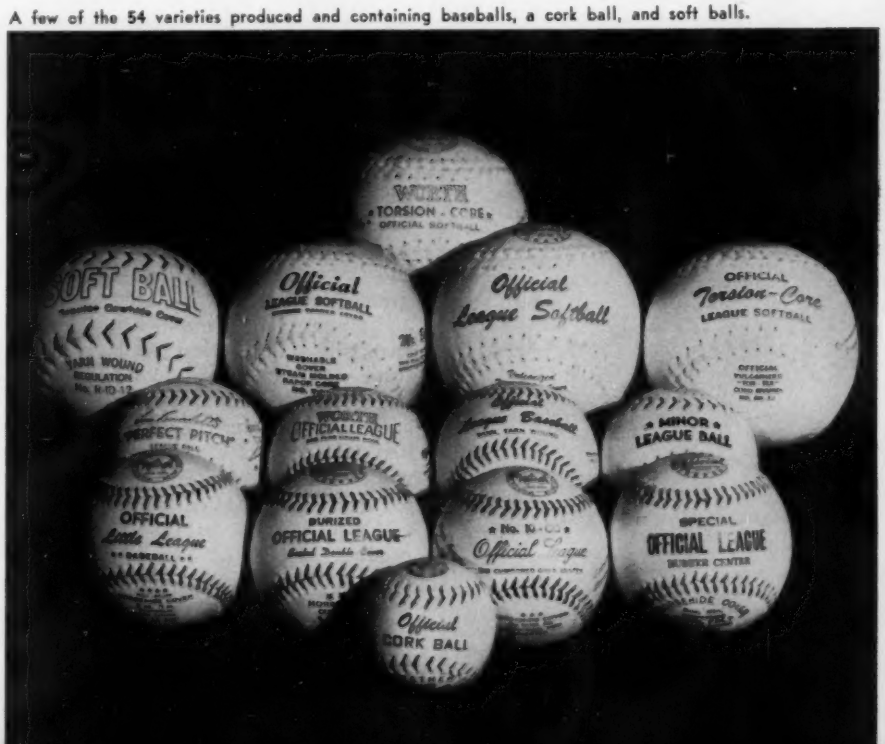
It's the wool that makes a baseball ride so high and so fast and so many times. Lannom guards that quality by spinning its own yarn and by tanning the horsehide used in the cover.

Staff prepared
Exclusive



Cushioned-cork center to left; first winding; second winding; third winding; fourth winding; and fifth winding with cotton yarns. Cover is then added, cleaned, and then stamped.

A few of the 54 varieties produced and containing baseballs, a cork ball, and soft balls.

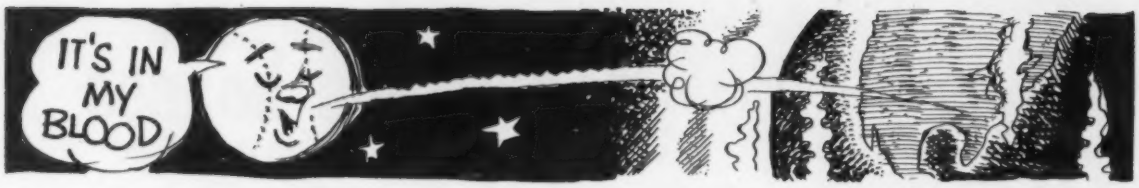


weight. Specifications permit us to vary the weight plus or minus one-quarter ounce, but the size has to stay pretty well "on the money" for we die stamp our covers to one size and build the ball to fit the cover.

"The ball that Babe hit had another inherent flaw that is unknown in the best ball of today—the twentieth man to hit it found it had already lost 10 per cent of its bounce. Today's ball will remain lively until the cover gets bruised so badly it has to go into the practice bag.

"The balls are sometimes given cruel tests, using force far beyond that which a baseball player can apply. Compressed-air guns fire them against solid concrete walls to test seam strength, scuffing resistance, cover strength, recovery, and sphericity. Today's premium ball can take it.

"If a pitcher can work a cover loose enough to form a slight ripple or pocket into which a finger can sink, he can impart



added spin to the ball and get an exaggerated curve from his throw. Some batters, especially Ted Williams, can spot such an exaggerated bend in time to correct for it. The majority cannot, so the situation usually is in the pitcher's favor.

"We have foiled such practices for all time by coating the last yarn layers and the inside of the cover with rubber cement. When the cover is then sewed in place, the cement forms a contact bond between ball and cover, a bond which only a Gargantuan grip can break.

"The Little League ball has multiplied the baseball market several times over within a few years. And contrary to popular opinion, the Little League ball is no smaller and no lighter than its major league counterpart. However, we have made on special order a number of such balls weighing 4.5 ounces and measuring 8.5 inches in circumference.

"We tan our own hides to take advantage of the cost saving our quantities give us and to give us an added measure of control over quality. Properly tanned, a baseball cover will not stain readily on a muddy field nor attain an eel-like slipperiness when wet.

"We also tan cattle hide chiefly for softball covers, but cattle hide has to be split and that invites scuffing. That is why we don't use it on the better grades of baseballs. The cellular structure of a hide ties the outside surface to the inside surface so well that it naturally resists scuffing—splitting the hide destroys that property.

"We make 54 styles, ranging from the small cork ball (compressed cork overlaid with horsehide) through several grades of baseballs and including both kapok-filled and cork-filled softballs. Softballs do not get the rough treatment that greets every new baseball, so a cattle-hide cover is sufficient. And regardless of the filler used, we wind a layer of the combed Peeler yarn around it before we cover it."

Those who have spent endless hours winding a bobbin of yarn into a ball and sewing it raggedly to keep it from unwinding, will envy the ease and precision with which baseballs are wound mechanically.

To prevent yarn patterning, which will lead to a lop-sided ball, the baseball is wound in five separate stages, and the ball is moved to a different winding machine and different operative for each stage. The machines are built so that both yarn tension and compression can be adjusted.

Conventional disks supply the yarn tension, which is adjusted until the yarn breaks and is then slacked off slightly, and a sliding carriage is weighted to give the needed pressure on the ball as it spins between the winding wheel and the oscillating double-cone spindle that serves as yarn guide and pressure roll. Four-ply woolen yarn is used in the first two stages; three-ply in the next two stages; and 20s/2 cotton for the fifth stage. Each winder operative keeps his product within very close weight and circumference tolerances (he is supplied with scales and steel tape) to assure the final product being just large enough to fill the covers and still fall within the weight tolerance of ¼ ounce.

A skilled winder operative has learned that the tape measure and the scales are the final arbiters in baseball winding, but he also has learned that his sense of touch has become remarkably acute—he needs only to feel a ball to tell if it is offsize by 1/16".

"Clicker" operatives stamp the covers from the hides. These men, like the winder operatives, are paid by piece-rate but the clicker operator has a piece-rate balanced by his waste factor. The salt hides cost about $12.00 each, so Lannom must get every possible cover out of each—nothing is guaranteed by the hide seller.

Sewing is done by hand by women who have been trained to pass Lannom's speed and quality tests. While the premium balls are sewed in the factory, home-sewers take tons of them home and sew them in their spare time. Every ball, however, is given a rigorous seam inspection.

The factory sewing room foreman personally inspects each one sewn in his department and with an awl makes final adjustments in the stitches. Such adjustments usually amount to tucking the cover edges now and then where they butt at the seam. Sewers finish five to seven balls per hour per operator. Each ball is washed in an organic solvent, wiped free of all stains, and is then passed on to the stamper for final inspection and for its markings.

Each stitch gets individual inspection.

Stamper gives ball its last inspection.

A duster, picker (here being loaded), and two storage bins supply the three-section card. Tape section is well-lit.

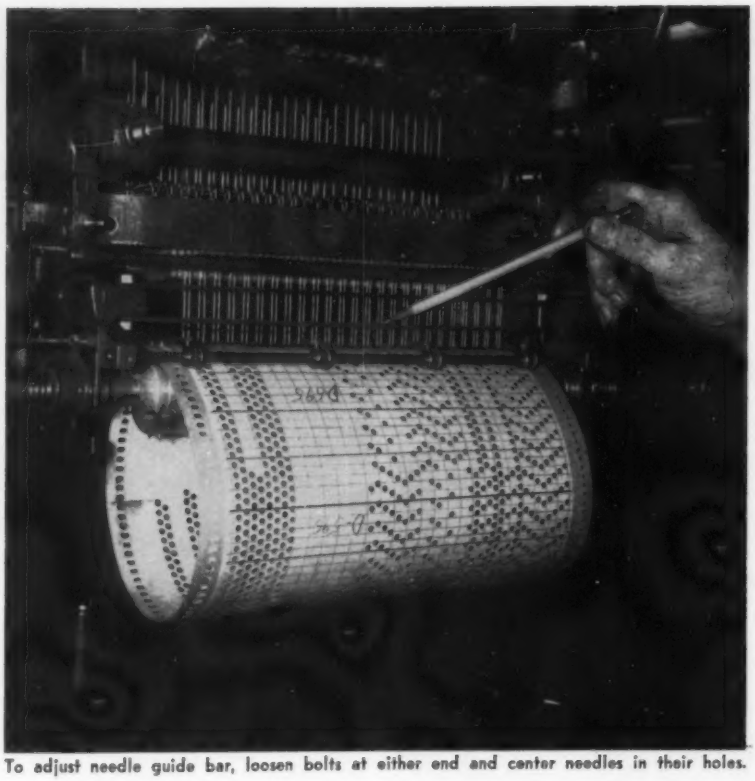
The thick, tanned hide of a draft horse is tacked for drying. Domestic hides are too thin.

The "clicker" drives a die through hide, stamps out covers perforated for the sewing yarn.

All covers are sewn by hand. A skilled sewer, handling two needles at "dangerous" speed, sews 5 to 7 balls per hour.

Mill man writes a primer on

fixing the Staubli dobby



To adjust needle guide bar, loosen bolts at either end and center needles in their holes.

by George Williams
Exclusive

THE STAUBLI dobby head is suitable for both fancy and plain weaves, and we have found that it needs very little repair work—the best maintenance for this head is to keep it cleaned and oiled.

We are running this head on C & K, C-4, 4 x 1 looms, weaving very heavy upholstery goods with as many as 22 harnesses (shafts). We get good results, and we do not need a multiplier for this head.

How It Works. The head is powered by a chain drive driven from the crank shaft of the loom. The pattern is made from an extra heavy paper roll with holes in it.

Hooks, backs, and jacks are worked by a knuckle. The knives are operated by a cam. Head jacks lift the harness jacks which are pulled by hooks and loops. Needles drop in the holes in the pattern, causing the hook to stay on the knife.

The box motion is worked the same as the harness and does not need a multiplier. When a hole occurs in the pattern, the weight pulls the needle off the needle knife, the needle drops the hook down, and the knife cam pushes the knife back with the hook on it, thereby lifting the harness or pulling the slide tooth in making the box motion work.

Timing the head requires turning the loom until a knife starts moving outward—the hook should start rising at the same time. Timing is done by adjusting the gear on the crank shaft.

Needles should pass through in the center of the pattern holes. If off-center, they are adjusted by moving the cylinder.

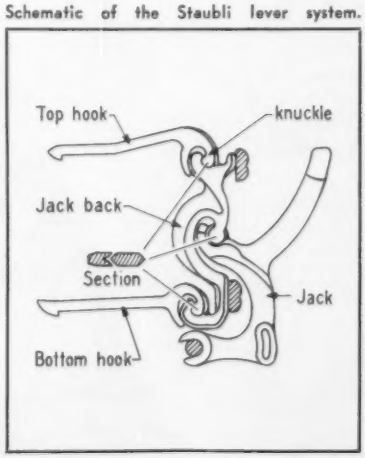
If needles are in center on one side of the pattern and off-center on the other side, adjust the needle guide bars.

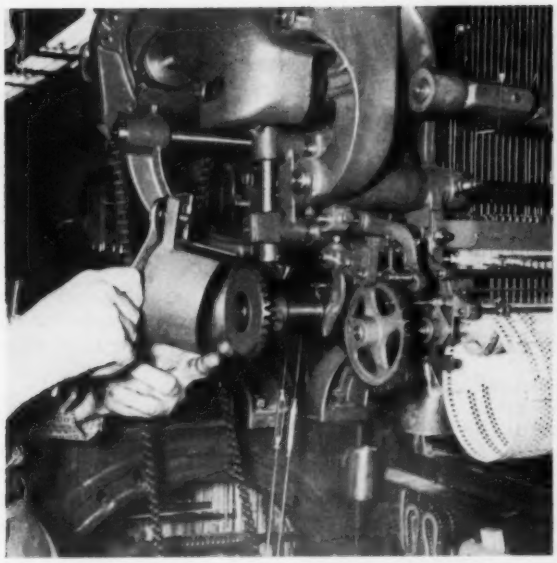
Needles should lift 1/8" to 3/16" at the highest point; lift may be set with the weight bar and should be the same on both sides.

Separators on the pattern cylinder should not be under the holes in pattern, as the needles will hit them and the weights will not fall. This condition in effect is the same as not having a hole in the pattern.

In setting the shed for the shuttle, start on the front jack. Set the loop that pulls the jack, and work toward the back. The jacks are notched so that they drop down

Schematic of the Staubli lever system.

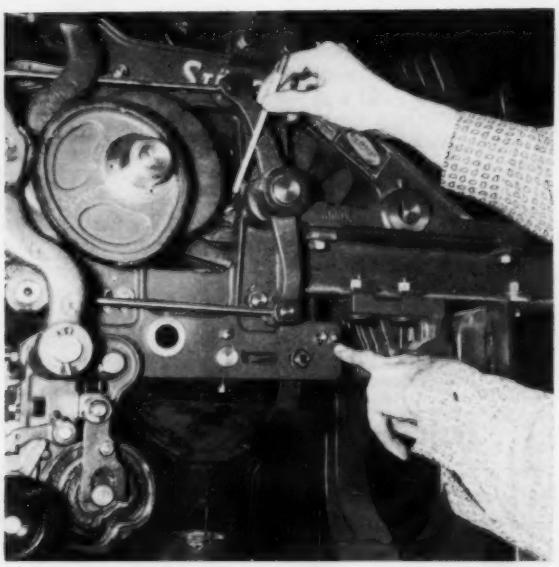




Gear guard removed to show the gears by which the timing is done.

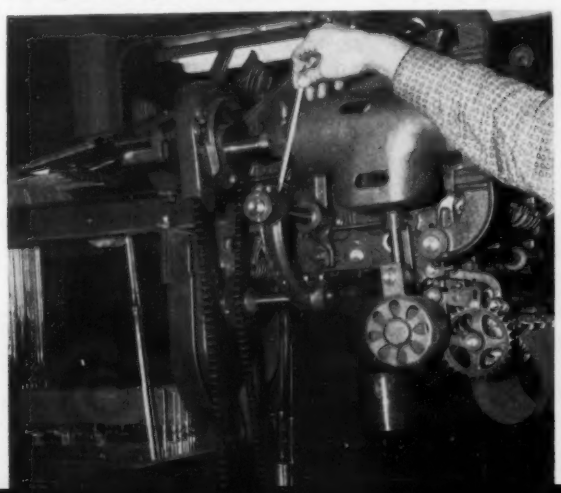
Cams on jacks (six jacks and six cams) stagger harness crossings.

To change a pattern, pull latch and lift the cylinder right out.



Adjusting screws outside head simplify lining up internal parts.

Idler sprocket may be drifted to remove slack from driving chain.



Pattern cutter is easy to operate. Note draft on top cylinder.

Article 4 of
Gauges in Draper loom maintenance
will appear in
the May issue

one notch on each jack as setting progresses toward the back.

With all harnesses down, set harnesses the same way. On a 20-harness weave, there should be 1/4" difference from the front or first harness to the back or last harness. The back harness should be 1¼" lower than the front harness.

The shed should be ⅛" to ¼" over shuttle with shed at the full open position or loom on back center. If the harnesses are set correctly this way, the harnesses will be level with all harnesses up.

Harnesses will not cross at the same time because there are six jacks with cams on them to stagger the shed. While weaving, this prevents floats on cotton and broken filaments on nylon and rayon.

It is simple to change patterns—many patterns can be woven on the same draw in the harness. Merely cut the desired patterns on into the cards, and remove the cylinder by pulling the latch out on both sides of the cylinder.

The cylinder and pattern come out together. Take the old pattern off, put the new pattern on, then put the cylinder back just as it was removed, being careful so that holes are lined up before starting the loom.

When the Dobby Fails. If the dobby head is not weaving right, several fundamentals should be checked: (1) see that the pattern is cut right; (2) be sure the pattern is on the cylinder straight; (3) as certain that the head is timed right; and (4) see that needles enter the holes in the pattern on center and that they do not bind.

Put jacks back and hook in the center of the head side. This is done by six adjusting bolts, three on each side of head. Set so jacks will work freely, and run the bolts in finger tight. Three bolts on the back side of head should be backed out two turns. Tighten lock nuts, and this should let the jacks work freely.

Keep the drive chain tight at all times. Do this by taking a link out or by adjusting the sprocket for the chain regulator.

Cutting patterns is a simple operation. The pattern cutting machine has keys for the top and bottom knives numbered from one through 30, and the draft holder turns as the pattern is punched on the keys. After punching out a repeat of the pattern, put the machine in the repeat position, putting the first repeat on the cylinder. Punch it out, then turn the repeat back, and start over.

Repeat until there are at least 100 picks in the pattern. Every time the crank makes one complete turn, it represents two picks in the cloth.

Atlantic City forum on future of textiles

■ ECONOMIC, financial, technological, and marketing developments and implications for the textile industry in the 1960's will be discussed by a panel of nationally prominent leaders in the respective fields at a seminar for textile mill management and sales executives on the occasion of the American Textile Machinery Exhibition in Atlantic City, N. J., next month.

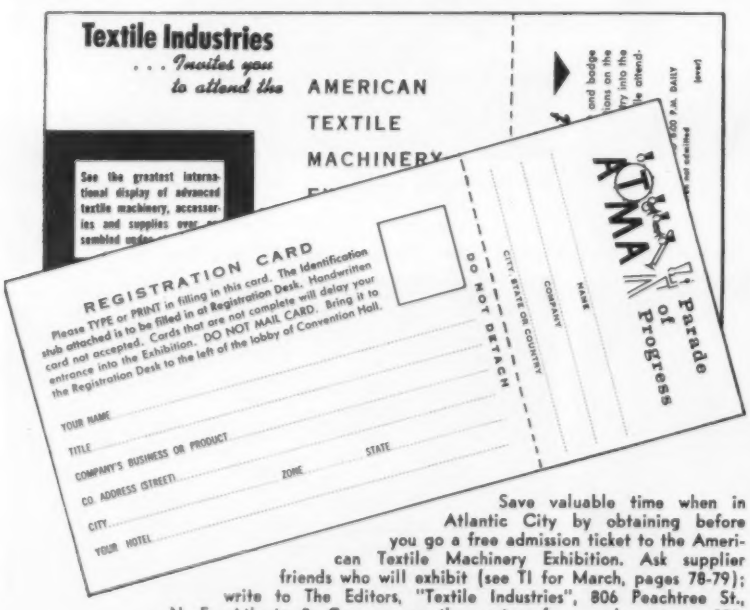
Dr. William H. Miernyk, director of the bureau of business and economic research at Northeastern University, will present a paper on "The Economic Outlook for Textiles," followed by Walter Regnery, vice-president of Joanna Cotton Mills, who will speak on "Vistas of Textile Technology."

Walter A. Kelley, president of Commercial Factors Corp., will discuss "Financing Equipment Modernization," and C. W. Bendigo, director of marketing for Werner Textile Consultants (the firm that is sponsoring the seminar), will talk on "A Marketing Man's Outlook Toward Machine Modernization."

The seminar, which is said to have been approved by the American Textile Machinery Association, will be held on May 25 at the Shelburne Hotel. Beginning at 9:30 A.M., the panel discussion will end at 12:00 noon, followed by a reception and lunch.

Frank A. Leslie, vice-president of Burlington Industries, Inc., will be the luncheon speaker with the subject, "The Textile Merchant Then and Now."

"The presentation of this seminar is designed to underscore the official 'Parade of Progress' theme of the ATMA exhibition," Jack C. Werner of the consulting firm said. "By bringing the role of modern equipment into proper focus in the over-all picture of profitable operations, we hope to render a valuable service not only to the machinery and equipment manufacturers, but to the textile industry as a whole," he explained.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DO NOT DETACH
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COMPANY
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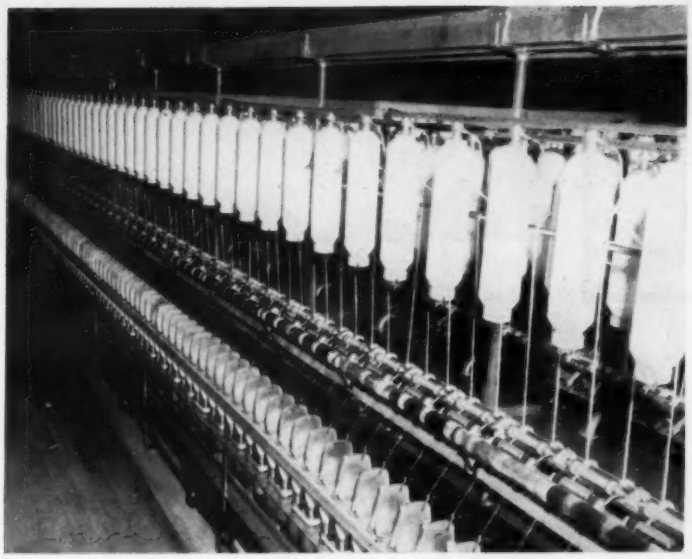
Parade of Progress

Save valuable time when in Atlantic City by obtaining before you go a free admission ticket to the American Textile Machinery Exhibition. Ask supplier friends who will exhibit (see TI for March, pages 78-79); write to The Editors, "Textile Industries", 806 Peachtree St., N. E., Atlanta 8, Ga.; or use the postage-free card on page 225.

mill report: MAGNETIC TOP ROLLS



Cleaner and more even yarn is produced, less cleaning is required, and consumption of power is lower, results of three-month test indicate

by a mill superintendent
Exclusive

AN OUTSTANDING new concept in spinning drafting was shown at the last Southern Textile Exposition. As a result, we ordered and have had in operation for three months one complete, 252-spindle, magnetic top roll changeover. It has been operating in the midst of regular production frames and has been completely trouble free and produces better yarn than that being produced on our other long draft changeovers.

We are producing 16s to 24s yarn from 3-denier, 1½" Orlon, spun from 1.50-hk double roving. The Uster variation has averaged 10% less than our standard production. The count variation has been reduced from 8% and 10% to 6% and 8%. Ends down have been about the same. The drafting area is much cleaner, resulting in fewer slubs. The completely oiless feature of the system makes the overhead blower much more effective.

There are a number of cost-saving features which have developed. To date we have not lost an apron, because laps are practically nonexistent. Even when an occasional one does develop, the magnetic pull decreases as the lap increases, and eventually all pressure is relieved. This results in the lap-up being very loosely wound, making it easy to remove. Also, the absence of pressure eliminates the danger of breakage of parts or the bending of steel rolls. All of this practically eliminates the section man's job so far as the drafting system is concerned.

Scouring the frame while running is being studied. A man removes a stand of top rolls, cleans the aprons and rolls, replaces the parts, and pieces up the ends. Then he moves to the next stand. It looks as though one man could do a frame a day with practically no loss in production.

Less power is consumed because of no pressure in the roll stands and saddle and stirrup assemblies. The ¾"-wide aprons cause less friction on nose bars and cradles. All this results in less wear on the draft gearing.

Aprons and cots are less expensive because they are so narrow.

No expensive and troublesome buffing attachments are necessary since the rolls are handled in the same way as solid rolls. The elimination of antifriction roll maintenance and lubrication is advantageous.

Roll picking will be required every two weeks compared to every week now. This is due to the elimination of saddles, top arms, stirrups, roller beam brackets, and the use of narrow bosses. The top rolls are practically straight all the way across the top, allowing the clearer to keep them clean at all times. The picker can go at a very rapid rate because of no obstructions.

Elimination of wear, breakage, and crooked steel rolls; less power; reduced cleaning; and cleaner, more even yarn are all reasons we are considering changeovers for an additional 16 frames.

Wool finisher's high-price specialty

Carbonizing is the first step for many fabrics processed by United Wool Piece Dyeing & Finishing Co. Although the company has diversified into blends, vicuna and cashmere fabrics remain specialties.

They still specialize in vicuna and cashmere at United Wool Piece Dyeing & Finishing Co., but they're on top of the latest blends, too

Staff prepared Exclusive

FOR MORE than 30 years the United Wool Piece Dyeing & Finishing Co., of Passaic, N. J., has continued to specialize in finishing fabrics of the so-called "precious" fibers. Although woolens and numerous blended fabrics are also processed, fabrics of vicuna and cashmere still represent a substantial portion of United Wool's production.

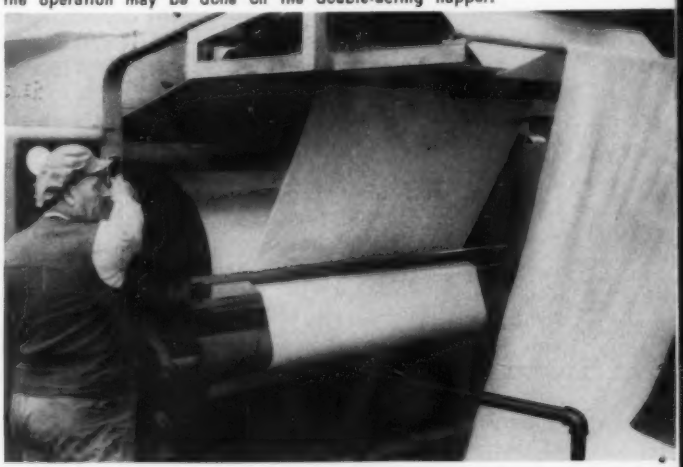
By their nature, vicuna and cashmere require more skillful handling to obtain the high quality finishing effects that markets for these fabrics call for. Fabric hand, appearance, and color naturally come under more critical appraisal in these high-price markets. Thus, over the years United Wool has come to regard all operations with equal importance.

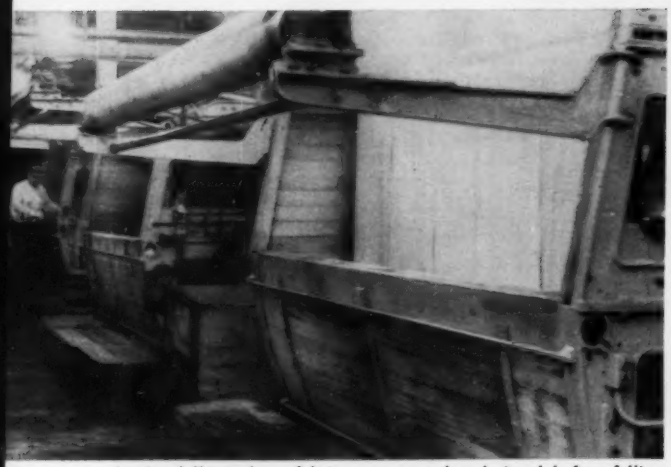
For each fabric in the precious-fiber group, a sequence of operations has long ago been established. But often some modification in processing is necessary because of variations in raw materials. Two pieces of cashmere, for example, though processed under identical conditions, may react differently, and thus require on-the-spot changes in processing to achieve the desired end result.

Aside from the fact that each

A gradual modernization program has replaced most of United Wool's dyeing equipment—for example, with stainless steel becks.

After dyeing and drying, many fabrics are face-finished. Part of the operation may be done on the double-acting napper.





In the dolly washers, fabrics are scoured and rinsed before fulling and rinsed again after dyeing. Vicuna and cashmere fabrics require skillful handling throughout the long, involved processing cycles.

The fulling operation, which follows scouring, is carried out under careful supervision, with frequent fabric inspection. On-the-spot changes may be necessary to get the desired fabric characteristics.

operation has been planned with care, and equipment has been selected to suit operational requirements, United Wool regards practical know-how as the key to good finishing. Management points with some pride to the long service of its key employees, particularly at the supervisory levels.

Although demand for fabrics of precious fibers has remained unchanged, the company has not overlooked the emergence of man-made fibers, and a sizable portion of its output, which often reaches 1,100 pieces weekly, is comprised of currently popular blended fabrics. In continuance of this policy of diversification, the company is constantly experimenting with new fiber blends as they reach commercial development.

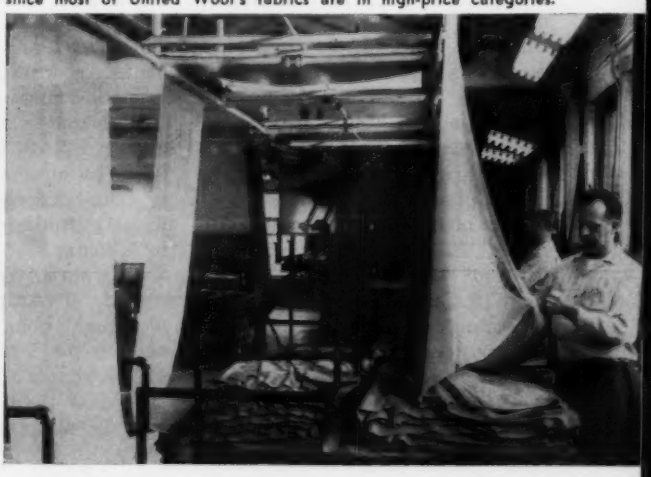
One of the main features of United Wool's one-story plant is the efficient lay-out of its manufacturing operations, permitting a smooth flow of fabrics in process. Many of the operations are separately housed, and each is located adjacent to the succeeding one to minimize materials handling.

In evidence as well is the plant's changing look, in keeping with a modernization program, which over the years has been especially concentrated in the dry finishing departments. As a result, the company recently diversified into face finishing knitted fabrics of man-made fibers. Now undergoing modernization is the dyehouse, where stainless steel becks are being installed for an expanded production of man-made fabrics and blends.

Fabric processing routes vary, dependent on the fiber content and finish desired. The accompanying photographs, however, indicate the operations that are required to achieve hand, appearance, and colored effect on a wide range of wool, blended, and precious-fiber fabrics.

This is a section of the shearing department at United Wool. It's located next to the nappers to permit a smooth flow of production.

Perching calls for experience and care. It is not a hurried routine, since most of United Wool's fabrics are in high-price categories.



Posters like this at strategic points in the plant constantly remind employees of safety, stimulate employee-management cooperation. Poster subjects include quality, safety, and productivity.

Plant safety director for 1959 stands before mill's safety board and calls attention to the 1959 slogan—a sixth straight year without a lost-time accident. Plant manager R. W. Lane, Jr., looks on.

SAFETY SAVES $$$

UNARCO's outstanding plant safety record not only boosted morale—it increased productivity and reduced costs

Staff prepared Exclusive

NO ONE will deny the value of an industrial safety program. But it may be difficult to evaluate exactly what benefits a given approach to safety will produce. Actually, a well-organized program of accident prevention can show significant results on a company's annual profit and loss statement. This has been proved conclusively by Union Asbestos & Rubber Co.

The firm operates an asbestos textile plant in Marshville, N. C., as part of its Fibrous Products Division. This plant produces only asbestos textiles. A UNARCO plant in Bloomington, Ill., produces pipe insulation, high-temperature insulation, packing and gaskets. A Tyler, Tex., plant manufactures asbestos pipe insulations.

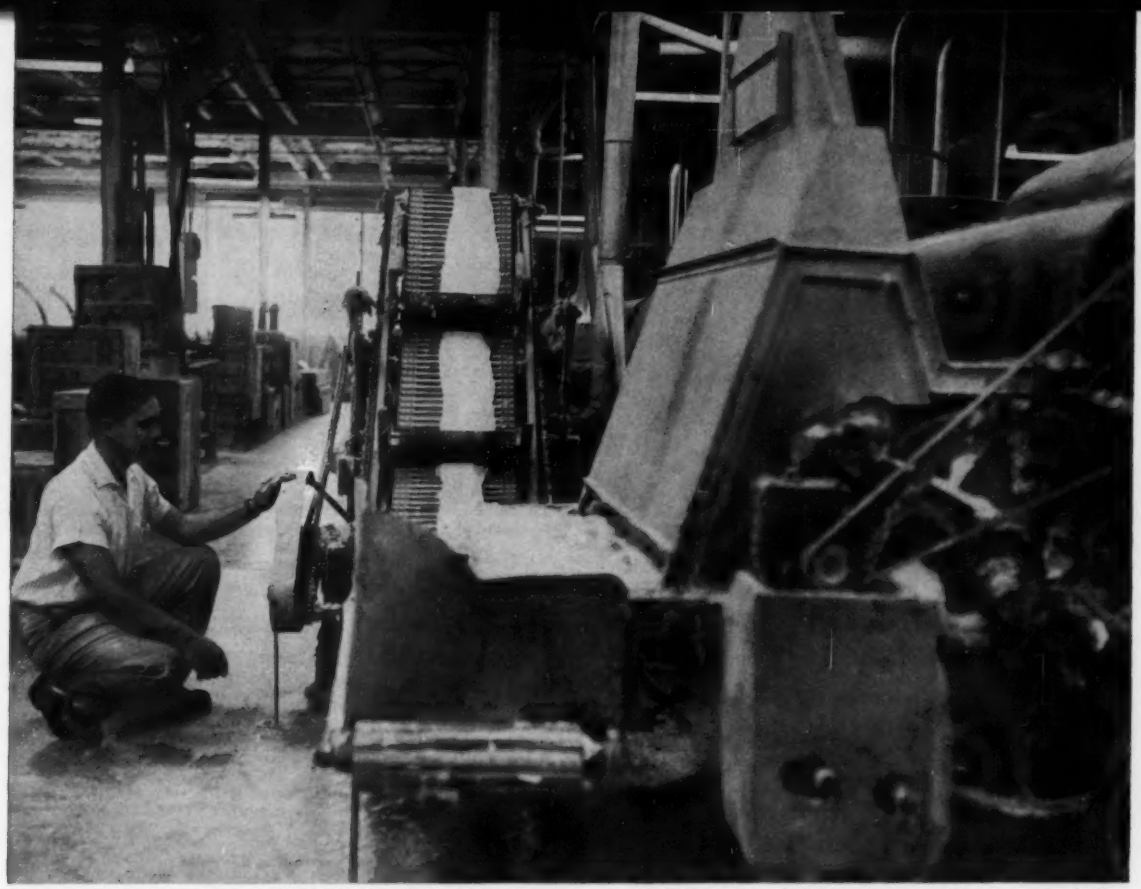
Asbestos textiles manufactured at Marshville include asbestos cloth, asbestos yarns and roving, tapes, thermal tubing, and oil burner wicking. The plant itself has been located in Marshville for many years. UNARCO took it over in January, 1948, and has expanded it consistently.

Safety Record Helped Cut Costs. Since the new safety program was begun five years ago, the plant has worked without a lost time accident. According to R. W. Lane, Jr., plant manager, this record is unique in the asbestos textile industry. UNARCO has been awarded three successive National Safety Council Awards of Honor—the highest citation of its type offered to industry.

As a direct result of this safety record, UNARCO now enjoys a workmen's compensation rate with 44% credit. This means that cost of workmen's compensation is 44% less than that paid by the average manufacturer in that industry in North Carolina. For the last four years, UNARCO's total workmen's compensation insurance cost has been halved.

Mr. Lane explained that the safety program is evaluated along with other operating costs. "In 1957, we conducted an operating labor cost survey to cover a four-year period from 1953," he said. "We found that over this interval, wage rates had increased substantially. Yet productivity has increased so much during the same period that the total labor cost of asbestos products produced by our plant has been reduced approximately 9% under the 1953 level."

Employee Participation the Key. According to Mr. Lane, the key to UNARCO's safety program is employee participation at all levels. The plant safety committee, which oversees the entire program, consists of Mr. Lane as chairman, and 14 plant supervisors and subforemen. This committee elects a safety director, assistant safety director, fire chief and assistant fire



Safety guards and protective cowlings were installed on this asbestos card as a direct result of plant safety committee recommendations.

Minutes of safety committee show emphasis on practical measures.

RECORD OF MEETING
OF
GENERAL SAFETY COMMITTEE
Held January 29, 1960

ATTENDING THIS MEETING: R. W. Lane, Jr., Hoover Ross, Max Stewart, Kenneth Pope, Emmett Helms, C. C. Beasley, Bruce Little, O. M. Nash, George Bryson, R. G. Hill, R. L. Austin, W. O. Stewart

PLANT GUESTS PRESENT: Boyce Baker, Jimmie Horne, John Wilson

MINUTES OF THIS MEETING: The meeting was called to order at 7:30 PM

by Chairman R. W. Lane, Jr., who welcomed the guests and outlined the aims and purposes of the Plant Safety Committee. The minutes of the previous meeting were read and discussed. The following recommendations were listed as pending:

1. Build shuttle rack at 4, 5, and 6 looms to keep shuttles not in use.
2. Make new board walks for looms 0, 1, and 11.
3. Tighten overhead switches on mules.
4. Make a new winding machine for twister singles.
5. Repair board of wide cloth calender.
6. Extend air pipe at crusher and Ring Spinning.
7. Repair floor at Safety Board and at 12 and 13 finishers.

Housekeeping Committee reported housekeeping fair during the month.

First Aid Attendant, Hoover Ross, reported 10 first aid cases for December with no doctor cases and 8 first aid cases in January without a doctor case.

Names of Plant Guests drawn to attend the next meeting are: Fred Pope, Bruce Hasty, and Jimmy Drake.

Housekeeping Committees appointed as follows:

1st of month - Bruce Hasty and Bruce Little
Middle of month - Jimmy Drake and Emmett Helms
Last of month - Fred Pope and Raeford Lee Austin

The recommendations have been listed and are attached hereto.

Meeting adjourned at 9:30 P. M.

R W Lane Jr. — Plant Manager
H Ross — Safety Director
W O Stewart — Secretary

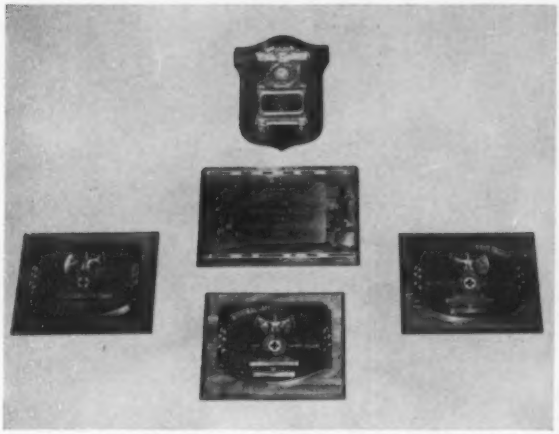
Recommendations are sent to maintenance department for action.

MAINTENANCE DEPARTMENT

The following recommendations were made and approved at the Safety Meeting held January 29, 1960.

1. Obtain additional gum machine for area around fountain at mules.
2. Nail strip of tin fillet on No. 5 twister.
3. Remove overhead angle iron at spooler.
4. Clean switch panel in dust house. Remove cuspidors from beneath.
5. Install new cut off valve on waterline to loom 11.
6. Repair stock boxes as needed.
7. Build cover over bench grinder at Card 13 and lock. Give keys to fixers.
8. Make bench for carding employees to sit on to eat lunch.
9. Build board walk above stock bins to service condensers.
10. Repair water line at twisters.
11. Repair sentry light.
12. Replace broken window lights.
13. Build broom racks for carding department.
14. Paint stripes for aisles at scales.
15. Build rack for drum gears No. 2 mule.
16. Paint additional card clothing grinder.
17. Repair sentry light equipment.
18. Check condition of cuspidors and replace more often as needed.
19. Adjust or reline Towmotor brakes.
20. Repair connections to card blowers.
21. Build hanger for rake on fearnaught.
22. Enclose left side of feed apron on fearnaught so draft will not disperse fiber.

R W Lane Jr. — Plant Manager
H Ross — Safety Director
W O Stewart — Secretary



Awards made by the National Safety Council to UNARCO's Marshville, N. C., plant are shown in the photo at left above; the right photo shows awards from North Carolina Department of Labor, U. S. Department of Labor, and N. C. Industrial Commission.

chief, from among the supervisory members. These officers can serve only a one-year term, and cannot succeed themselves in office.

Election to these positions has become a sought-after honor, in view of the success of the program and the attendant personal recognition.

Each month, three employees are selected to serve as guest members of the committee. Names of these guest members are drawn from a hat containing all employees' names to insure all an equal chance of selection.

Meetings of the safety committee are held monthly in a community building apart from the plant. Mr. Lane explained that these are dinner meetings, because safety ideas seem to flow more freely in a relaxed atmosphere of this type. The meetings consider reports of three plant inspection teams, and make recommendations to all departments for improvement in housekeeping and elimination of accident hazards.

"Our two-man teams are made up of a regular committee member and a guest member. Three monthly plant inspection tours are made by these teams. One team tours at the beginning of the month, one in mid-month, and one at the end of the month," Mr. Lane explained. They check for safety hazards, discern housekeeping problems, and formulate ideas for improving working conditions.

"We feel that inspection tours of this type are a better approach than waiting for suggestions to be volunteered from among our work force. These teams make it their business to notice specific items that need correction. And generally, their observations are quite practical."

Individuals Get Credit. The contributions of every individual to plant safety are high-lighted. Every year a safety banquet is held at which employees with five or more consecutive years of accident-free work are given recognition. Fifty such employees were honored by industrial and civic dignitaries, along with safety leaders throughout the state of North Carolina, at the 1959 UNARCO Safety Awards banquet.

The business houses in the town of Marshville, and the local newspaper, *The Marshville Home,* have extended unusual cooperation to UNARCO's safety program. This is of mutual benefit—the firm draws the majority of its employees from the local area.

Characteristically, the Mayor of Marshville has honored the firm's effort by proclaiming an annual "UNARCO Day" to honor the firm's employees for building an outstanding record.

The safety story has been headlined in the local area newspapers, and employees who have served on committees are given individual mention in this coverage.

Under the direction of the safety committee, the plant has established a fire brigade, consisting of plant employees under the supervision of the plant fire chief. A weekly inspection of all fire fighting equipment is made and evaluated by a written "Readiness" report.

Fire drills are held regularly under the supervision of the fire brigade, and employees are instructed in the use of various types of fire extinguishers, and in the operation of the high-pressure fire pump and four fire stations.

Safety Stems from the Individual. According to Mr. Lane, any safety program ultimately rests upon the individual. "We deal with the physical side of a man's nature by providing necessary safeguards on machinery and equipment, proper instructions for operating equipment, and good housekeeping," he said.

"On the mental side we appeal to the employee's self-esteem by giving him personal recognition for a good safety record and participation in the safety program itself.

"But even more important is the spiritual side," Mr. Lane emphasized. He specifically referred to Proverbs 24:6— 'For the wise counsel, thou shalt make thy war and in multitudes of counsellors, there is safety.'

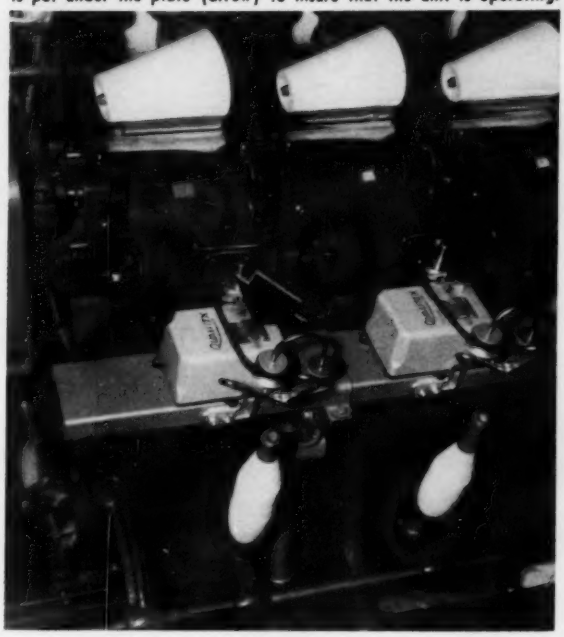
"We feel our safety committee provides the 'wise counsel.' But there is another important element. The basis for the total safety program is found in Proverbs 21:31— 'The horse is prepared against the day of battle; but safety is of the Lord.' "

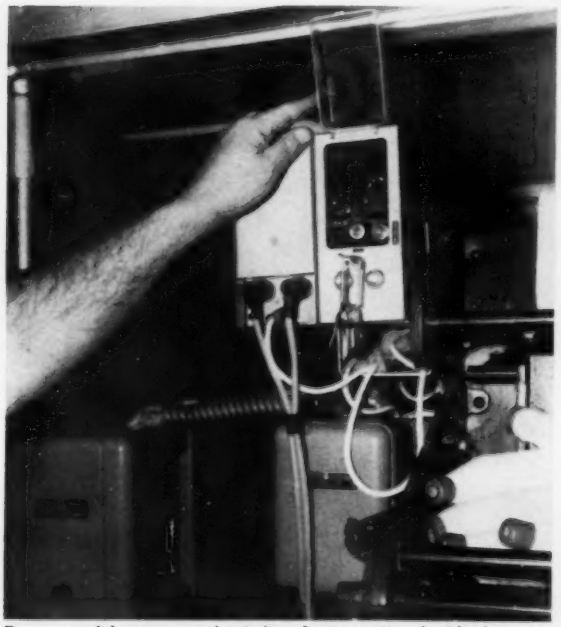
Slub catchers pinpoint defects

Survey shows how mills are using electronic slub catchers to check on spinning and winding performance

Staff prepared — Exclusive

Sensitivity of each unit should be checked daily. A small object is put under the plate (arrow) to insure that the unit is operating.





Four control boxes on each winding frame equipped with electronic slub catchers provide adjustment of electric current to the units.

Electronic slub catcher tests showed that most yarn defects were of the "torpedo" type, and most of these were caused by bad piecings.

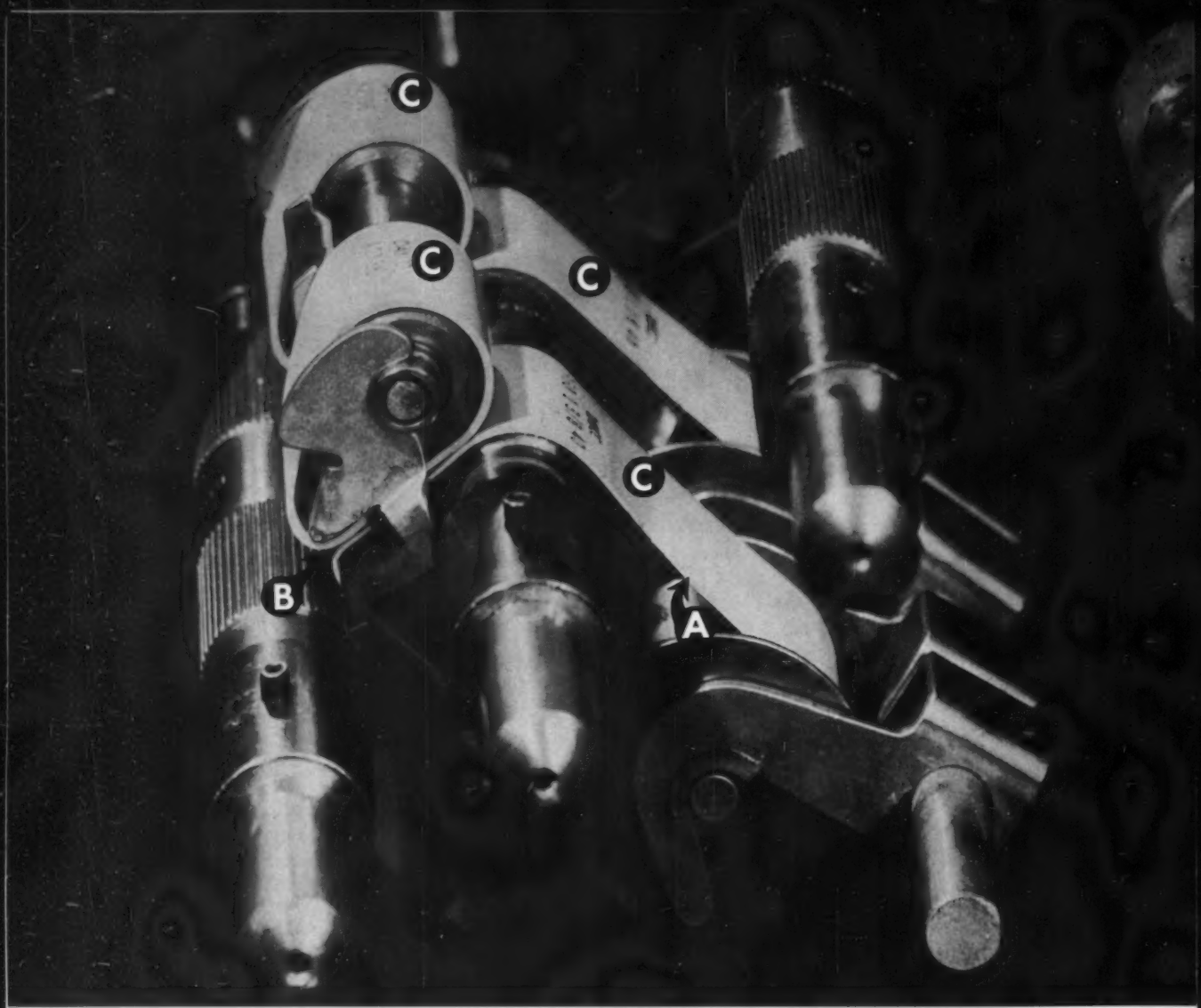
SEVERAL southern sales yarn mills have been using electronic slub catchers on test winders with good results. A 100-spindle Model 102 winder has been running for more than a year on carded and combed cottons, primarily with knitting twist in counts ranging from 18s to 40s, in one mill.

Numerous tests have been run on the electronic slub catcher. It is used as a check on other winders to see what gouts, slubs, knots, and other defects are left in the yarn by other machines. Mechanical slub catcher settings on other winders are adjusted according to the findings on the electronic device.

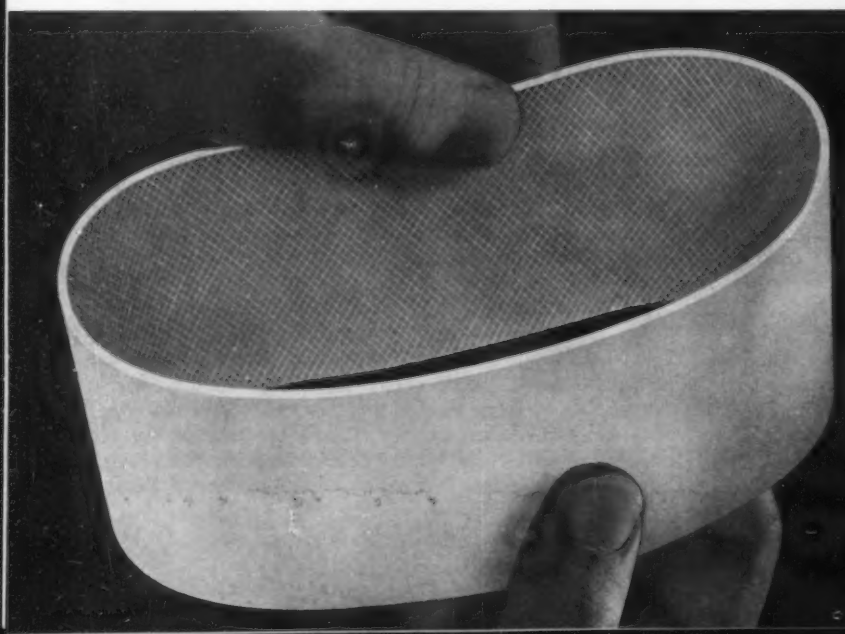
One test was run on combed work to find what was left by other winders. On 30s CP all defects were taken out by putting the electronic slub catcher on the sensitive setting. The machine was used to test each spinner to see what defects individuals make and to determine corrective measures. Operatives have improved as a result of this program, according to a mill official.

No yarn skinning is evident on the winder equipped with electronic slub catcher in this mill (20 winders are equipped with conventional snick plates and one with the electronic slub catcher).

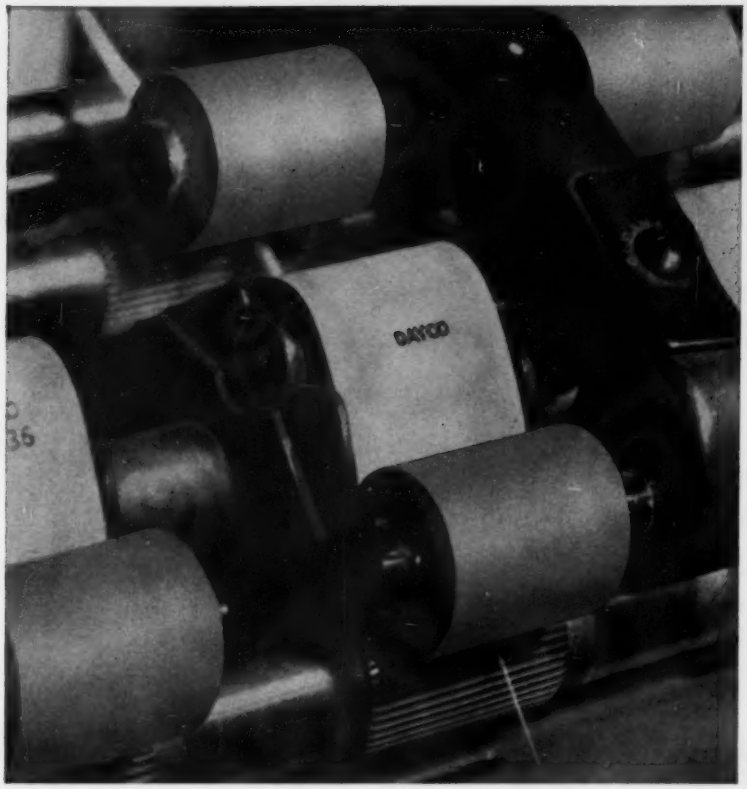
ANOTHER MILL with about 15 winders with regular slub catchers and one with the electronic type had similar experience. Mechanical slub catchers manufacture a lot of breaks by lint accumulations, according to a spokesman for this mill. In a critical market, the electronic device is a big help because it can be set to take out all defects or any proportion desired. As a test device, the equipment has been



ACTUAL WORKING MODEL of long-apron system shows: (A) Patented embossed surface for precise coefficient of friction and abrasion-resistance formulated to last for years: (B) Unmatched flexibility at nose-bar for consistently smoother performance and top quality yarn: (C) Guaranteed yarn control due to a cleaner spinning outside surface.



EXCLUSIVE . . . patented by Dayco . . . your only source for this important friction-right improvement in aprons that made possible lower power and increased production. It's another example of Dayco's continuous research program to increase economies and production.



A COT FOR EVERY PURPOSE—as well as a virtually all-purpose cot! That's the great Dayco story to meet every need for surface texture, densities, dimensions, sizes, kinds. Whether man-made fibers or mixtures are your spinning problem, Dayco research in the laboratory and in the field guarantees consistently better results and greater savings.

NEW RECORD-BREAKING SPIN-AND-WEAR PERFORMANCE

with Dayco on any apron system

For super-quality yarn—consistently, month after month—nothing matches Dayco's patented Embossed Apron for long-apron systems. Here's super-smooth drafting action—unequalled flexibility and precision friction surfaces on both sides to meet any and all conditions.

No more tucking or jamming at the nose-bar . . . no more ozone breakdown . . . no more abrasive problems for months and months.

Improve your yarn quality . . . up your spinning performance with the pioneer and leader in the field —Dayco!

Ask your Dayco Representative to set up a time trial installation with Dayco Aprons and Cots . . . better results guaranteed. Phone or write the Dayton Rubber Co., Textile Division, 401 South Carolina National Bank Building, Greenville, South Carolina.

Dayton Rubber

Dayco and Thorobred Textile Products for Better Spinning and Weaving

OVERSEAS PLANT: THE DAYTON RUBBER COMPANY, LTD., DUNDEE, SCOTLAND

Dayco All-Purpose Cots exceed 300,000 spindle-years WITHOUT REBUFFING

300,000 spindle years without the need of the usual periodic buffing! That's the 2½ year record from just one 120,000 spindle plant using Dayco's ALL-PURPOSE SG-60 cots.

Add to this amazing wear record the great volume of high-quality yarn coming off the production line and you can see the outstanding efficiency of the versatile SG-60.

But with more than 70 different fibre combinations running now on production lines, a wide variety of top-quality cots must be used. Now, in plant after plant, Dayco has proved its laboratory tests on its full range of cots in actual production. Dayco offers a cot for every purpose. Each one is specifically designed for outstanding performance in a specific production situation with just the precise coefficient of friction. Dayco Cots deliver more yarn... better-quality yarn in mills everywhere, year in and year out.

This is just another example of Dayco service in the cot and apron field. Dayco's broad, continuous research and laboratory facilities have brought the most practical answers to the textile industry's spinning problems. Dayco's discoveries in precision compounding have resulted in closer precision tolerances than any other on the market.

Dayco research sought and came up with the answers on super-drafting at lower horse-power. Dayco's laboratory maintains quality controls on Dayco's own production line that have no match in its field.

well worthwhile in this mill, an official indicated.

As a result of tests and corrective measures made possible by the equipment, the mill now has fewer complaints by far than were evident 10 months ago. Now, less than one tenth of the complaints formerly experienced are noted.

STILL ANOTHER mill running California cotton, 1⅛" SM, uses the electronic slub catcher on 120 spindles, and this installation has been in operation for about one year. Best results obtained in this instance show what was not being done on the most common type of slub catcher used.

The defects caught by the electronic slub catcher remain intact and can be seen and identified as bad piecings on speeders, knots, or whatever. Each spinner is checked to see what she is doing wrong. A doff of yarn from a side of spinning was run through the device to see what could be determined. A program of training operators in methods of putting up ends and in better cleaning practices was a direct result of the test.

Most slubs or defects were found to be the "torpedo" type, which were traced to creeling of speeders. The fault was caused by the method used to piece up ends by lapping and twisting roving ends. This cause of trouble was eliminated by block creeling at the speeders. However, this has not eliminated all slubs. 10 x 5 roving is creeled to 8 x 4 speeders in this mill.

The device was used to expedite a quality improvement program which effected a 15-20% reduction in defects wound on cones on an over-all basis for 16 frames. The mill makes knitting twist yarn from 16s to 50s, all combed cotton. The average yarn number is 29.56, and 120-spindle Model 102 winders are used.

There are four control boxes on each winder equipped with the electronic slub catchers. Every spindle has an adjustment which must be checked every 30 days. The units are sensitive to temperature and humidity changes which have an adverse effect on operation of the device. Production per operator is about the same as on more common slub catchers.

INITIAL COST and maintenance are the only disadvantages noted. Sensitivity must be checked every shift on every spindle, and a specially trained mechanic is necessary to care for the units. Quality-wise, its operation can't be beaten, but upkeep is higher than it is on the mechanical type of slub catcher. Electronic tubes must be checked, and each end must be checked to determine if the mechanism is operating, according to the mill spokesman.

An adequate cost department in most any knitting mill showing cost of yarn defects in relation to the finished underwear or outerwear fabric should justify a five cents per pound increase in price of yarn run on this device, according to a mill executive.

1959 man-made fiber output broke the record

■ UNITED STATES production of the man-made fibers in 1959 is placed at the new high level of 1,961,700,000 pounds by the *Textile Organon*, statistical bulletin of the Textile Economics Bureau, Inc. Last year's production was 21 per cent over the 1,616,200,000-pound output of 1958 and also was 11 per cent greater than the previous record out-turn of 1,765,600,000 pounds in 1957. All categories of fiber showed 1959 increases over 1958.

Preliminary data on world production of rayon and acetate last year indicate that the global output of 5,500,000,000 pounds was 10 per cent greater than the 4,994,000,000 pounds of 1958 and also was a new record, exceeding the previous high of 5,450,000,000 pounds turned out in 1957.

United States production of rayon and acetate last year amounted to 1,167,800,000 pounds and showed a gain of 14 per cent over the 1958 total of 1,021,900,000 pounds. The output of acetate filament yarn at 229,600,000 pounds showed a gain of 3 per cent compared with the previous year, while "textile" acetate staple and tow (estimated) at 71,000,000 pounds was 15 per cent over its 1958 level.

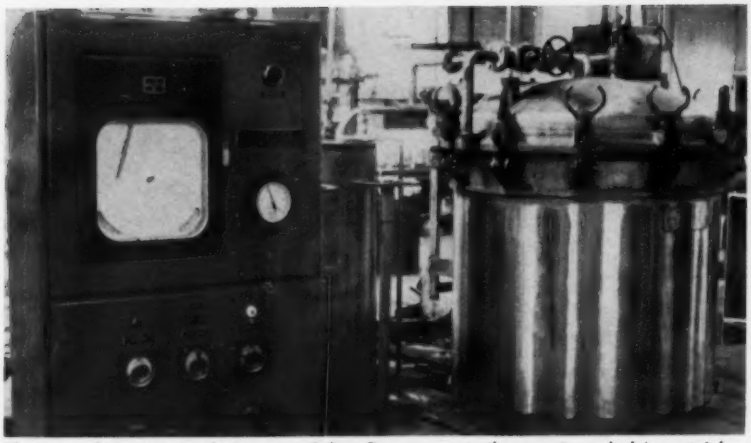
High tenacity rayon yarn production last year amounted to 332,200,000 pounds and was 26 per cent over the previous year, while output of regular and intermediate tenacity rayon yarn and monofilaments at 175,900,000 pounds showed an 18 per cent increase. Rayon staple and tow production amounted to 359,100,000 pounds and was up 11 per cent over 1958.

Non-cellulosic man-made fiber production reached a new all-time level of 646,500,000 pounds last year, which was 32 per cent greater than the 1958 output of 490,500,000 pounds. Within this category, filament yarn and monofilaments produced totaled 413,400,000 pounds, an increase of 29 per cent over the 320,000,000 pounds of the previous twelve-month period. Non-cellulosic staple and tow production came to 233,100,000 pounds, thus showing a 37 per cent increase over the 170,500,000 pounds of 1958.

The 1959 output of textile glass fiber at 147,400,000 pounds also was at a new record level, being 42 per cent over the 103,800,000 pounds produced in the previous year.

The report notes that U. S. consumption of rayon and acetate in 1959 amounted to 1,252,000,000 pounds, a 12 per cent increase over 1958. The 1959 consumption total is made up of producers' domestic shipments of 1,136,500,000 pounds (up 10 per cent) and cellulosic fiber imports of 115,500,000 pounds (up 37 per cent), the latter being the largest annual total on record except for 1955.

United States producers' nylon shipments to the domestic market last year totaled 355,900,000 pounds, while acrylic and modacrylic staple and tow shipments were 120,800,000 pounds. All other non-cellulosic man-made fiber shipments amounted to 108,400,000 pounds, bringing the total domestic non-cellulosic fiber shipments to 585,100,000 pounds or 25 per cent more than 1958.



There are three steps in dyeing tow: Orlon, Dacron, or Acrilan tow is packed into stainless steel basket, and then dyed under pressure. A finish is applied to aid in spinning. After drying, the tow is wound into ball warps for processing on staplers or converters.

A reason for tow dyeing is that spinning of fine Dacron-wool yarns for men's wear without recombing after dyeing is made possible.

Dyeing for a changing market

Staff prepared
Exclusive

■ THE MANUFACTURE of knit goods is the most rapidly changing segment of the textile industry. Obsolescence due to styling changes is a recognized danger, and it is not uncommon for the most popular fabric to saturate the market very rapidly.

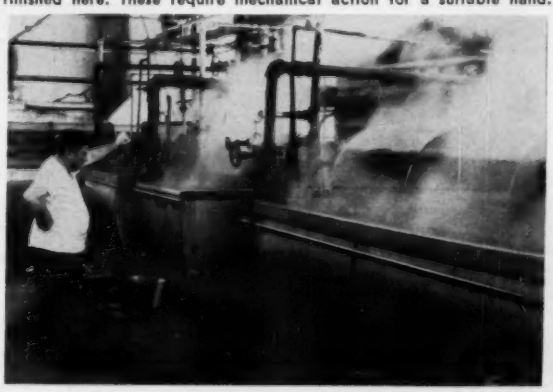
These style variations require diversified types of dyeing. To meet this requirement, the services of Jefferies Processors, Inc., Philadelphia, Pa., were recently expanded. Originally dyers of sweaters and hosiery, the company now dyes synthetic tow and skein-dyes high-bulk yarns. While sweater dyeing still represents a large percentage of production, diversification has brought greater stability.

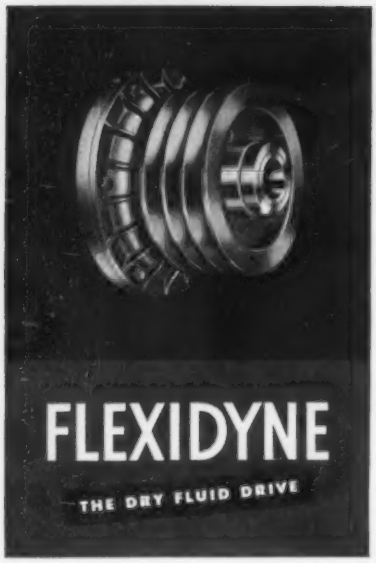
The management of the company has also recognized the growing importance of the South, both as a manufacturing and as a textile-consuming region. By the time this appears in print, Jefferies Southern Processors, a dyeing plant for sweaters and high-bulk skeins, is expected to be in production in Albemarle, N. C.

The accompanying photos illustrate the company's diversification in its multistoried plant. Each operating division is under the supervision of a trained technician, and all fall under the close administration of Jefferies' president, V. T. Hartquist. Since the company is vitally interested in new developments, a laboratory staff is maintained to perfect dyeing and finishing techniques, even before a new fiber gains commercial importance.

Textured-yarn sweaters are preset with high-temperature steam, following dyeing. Before presetting, the sweaters are first relaxed.

Sweaters and sweater strips which contain wool or fur are dyed and finished here. These require mechanical action for a suitable hand.





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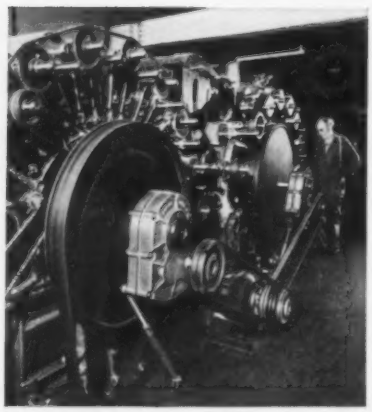
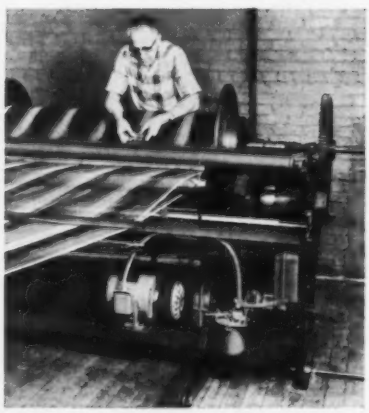
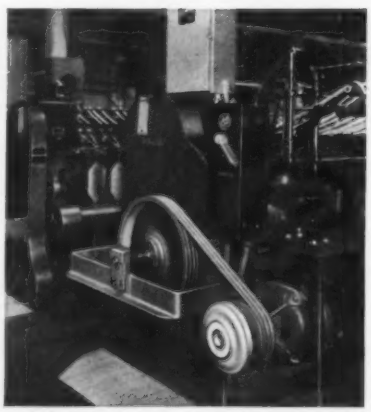


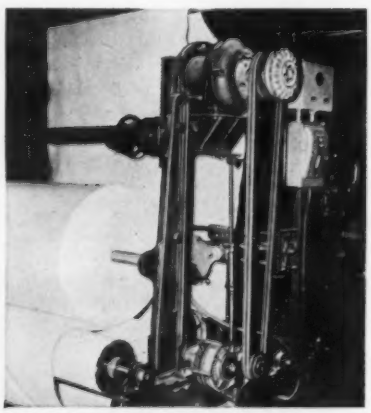
WOOL CARDS



LONG RAIL BEAM WARPERS



ROVING FRAMES



CORDUROY ROLLING HEADS

DODGE
of Mishawaka, Ind.

DODGE MANUFACTURING CORPORATION, 3500 Union Street, Mishawaka, Indiana

PHOTO 1. Strapping machine and conveyor to the new warehouse.

Finisher's warehouse goes modern

It speeds deliveries, assures better customer service, cut labor costs, and reduced number of damaged cartons

by M. D. Rochelle
North Carolina Finishing Co.

Exclusive

A NEW and modern 50,000-square-foot warehouse has been in operation at the North Carolina Finishing Co., Salisbury, N. C., since last March and has proved to be most satisfactory.

Some statistics:

Building dimensions—220 by 224 feet.

Covered loading platform—100 by 40 feet.

Steel shelving—8½ miles.

Carton capacity — 25,000 (2 square feet per carton).

Steel used—250 tons for shelving, 120 tons of structural for building conveyors (over 600 feet), both gravity and powered.

As with most finishing plants, North Carolina Finishing Co. has had inadequate finished goods storage facilities for many years. Goods were stored in ten different locations in the plant and required about 70,000 square feet or over 4 square feet per carton. All of these areas were crowded. Consideration was given to renting warehouse space in town, but each time this was considered, so many problems arose that extra effort was put forth and a few more square feet were found in the plant.

The cost of warehousing was very high. Cartons were handled with the aid of low lift fork trucks. Many of the locations had ceiling heights of under seven feet, making it impossible to use lift trucks. No racks were used, and cartons were piled up one upon another. Carton damage was high because top cartons had to be moved to get to the carton to be shipped. (The law of averages did not apply in this situation. The carton to be shipped was always on the bottom of the stack—never on the top.) Keeping track of the carton location was very difficult because of the frequent moves necessary to get down to the carton to be shipped. Two full-time men were used to keep the location file current.

Confusion—yes. Frequently the customer suffered because it took an extra day or more to locate missing cartons.

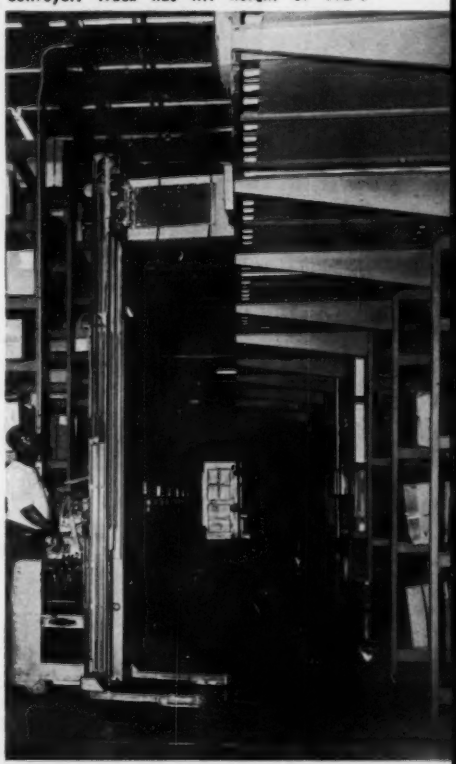
Design Problems. Decisions to build warehouses are not made overnight. Warehouses are not profit makers. Some of the questions that had to be answered were:

1. Can we modify our existing warehouses and do a satisfactory job? If not, what will we do with the existing warehouses when the goods are moved into the new warehouse?

2. How much area do we need? How high should the building be? What should the aisle dimensions be?

3. What material handling system shall we use? What type of

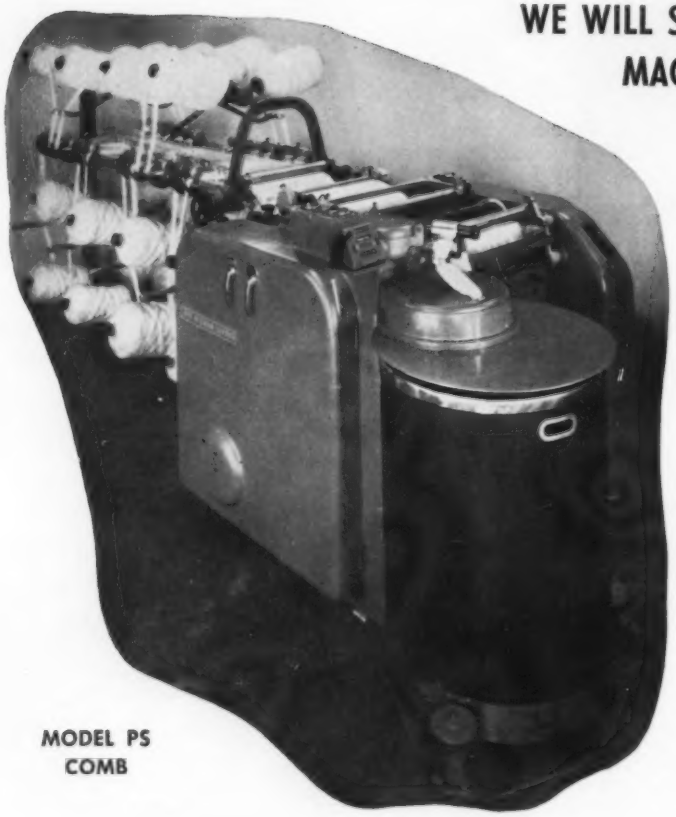
PHOTO 2. Lift operator places carton on conveyor. Truck has lift height of 192".



SANT'ANDREA NOVARA

NOVARA, ITALY

Europe's Largest Manufacturer of Worsted Machinery



MODEL PS COMB

WE WILL SHOW THE FOLLOWING MACHINES AT ATLANTIC CITY BOOTHS NO. 1312-15, 1223-26

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2. The PS comb processing synthetic staple at 175/minute.
3. Our NEW High Speed Gill Box with Automatic Evenness Regulator.
4. Our NEW High Draft Finisher Rover with Rub-Apron Delivery.

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PHOTO 3. Typical aisle, with cartons stored in racks.

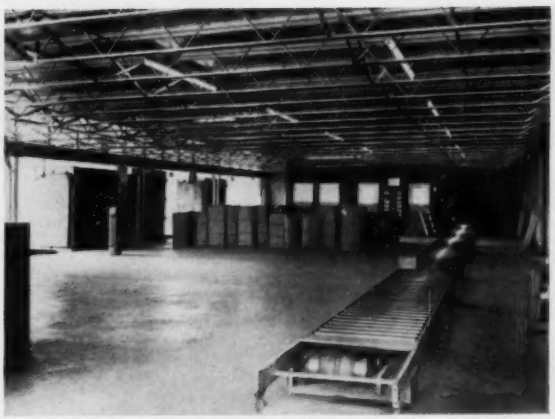


PHOTO 4. Cartons arrive at loading dock on this conveyor.

conveyors? What type of lift trucks?

4. What type of racks? Adjustable or not adjustable?

5. What are the average sizes and weights of the cartons and the extremes?

These were only a few of the questions that had to be answered.

After much research, many visits to other plants, and talks with suppliers, a plan was developed. Of course, it was changed many times.

Warehouse Layout. A building 220 by 224 feet fitted nicely into an area adjacent to our packing section. It is about 20 feet from the main building, to which it is joined by an enclosed ramp. The finished goods travel by gravity and powered conveyor from the strapping machine into the new warehouse. (*Photo 1* shows the strapping machine and the conveyor leading from it to the new warehouse.) The cartons travel sidewise on this conveyor so that the carton numbers will be facing toward the lift operator. The conveyor belt, 4 feet wide, runs the length of the warehouse from east to west at a height of 11 feet above the floor level. This height is necessary to allow lift trucks to pass under it.

Cartons going to storage and those going to the shipping dock ride the same conveyor belt, side by side. Starting and stopping the conveyor can be controlled from each of the 16 aisle locations.

The racks have seven shelves, with the top of the highest shelf 15 feet 7 inches above the floor level. Shelves allow for individual carton selection. Rack openings, determined by study of cartons, vary from 24 inches to 36 inches. Double racks are 6 feet 9 inches wide and spaced on 14-foot centers. This allows for an 8-inch overhang of opposing cartons and a 6-foot aisle, which is adequate.

Racks are in 10-foot sections, and each row has 21 10-foot sections. The conveyor is hung from the racks above the 10-foot aisle. There are 15 rows of double racks and 2 rows of single racks, making a total of 16 lateral aisles. Racks are numbered by rows from east to west. Each 10-foot section has a letter assigned, beginning with A. Shelves are numbered from floor up. A location is designated as 15-T-3, for example.

Warehouse Operation. The lift trucks are straddle, stand-up type, having a lifting height of 192 inches and a collapsed height of 117 inches. Their forward speed is 4 miles an hour, and they have a lifting speed of 45 feet a minute. The trucks have a 24-volt electrical system and are very maneuverable. The clamp attachments are regulated for pressure so that cartons are not crushed in grabbing and lifting.

Normal routine for the warehouse lift truck operators is putting cartons into storage and pulling cartons to be shipped, in the same operation. Cartons to be shipped govern the operation.

As orders are received for shipment, the shipping department gives the locator cards to the warehouse clerk. The clerk then goes through the warehouse and puts locator cards in small boxes at the end of each aisle. The lift truck operator starts at one end of the warehouse and, working one aisle at a time, with his clamp truck transfers the shippers from the racks to the overhead conveyors.

Photo 2 shows the lift operator placing a carton on the conveyor. He will then select a case from the conveyor going to storage and store it near the location of the next shipper. He will next mark the location on the locator card of the carton just stored, move a few feet, and pick up the next carton to be shipped. The carton to be shipped will then be put on the overhead conveyor, and he will pick up another carton to be stored until he has completely shipped from one aisle. *Photo 3* shows a typical aisle with cartons stored in racks.

The conveyor makes a 90-degree turn on a powered curve section when reaching the west wall and travels south to the loading platform. When it gets to the platform it takes another 90-degree turn on a gravity curve section and runs east the entire length of the platform.

The shippers will stay on the conveyor until they reach the loading dock. At this point, the shipping label is attached and the goods are hand trucked into the waiting trailers. The truck dock measures 100 feet by 40 feet and built at one end of it are an office and a waiting room for truck drivers, both measuring

a long array of years

For seventy-four years the Southern textile industry has relied upon Standard Oil lubricants to do a dependable protective job with maximum economy.

During this long array of years, we have pioneered in offering new lubricants to meet changing machinery, because the combined facilities for testing and research behind Standard Oil lubricants are unequaled. These facilities are available to tackle your problems whether they are "run of the mine" or involve a new or unusual lubricant application.

STANDARD OIL LUBRICANTS

STANDARD OIL COMPANY
(KENTUCKY)

truck drivers, both measuring 6 feet by 9 feet, and two toilets measuring 4 feet by 5 feet.

Photo 4 shows cartons on loading dock conveyor having just come out of the warehouse. They are being labeled and hand trucked to trailer on the left. The offices and toilets can be seen in the background.

Just inside the warehouse from the loading dock at the southwest corner of the building is a mezzanine measuring 28 feet by 40 feet. This is used for the storing of small packages weighing less than 75 pounds. These packages are not handled by the lift truck operators but move on the conveyor from the packing department all the way to the mezzanine section, at which time they are taken off and hand carried to the racks. The battery chargers and maintenance equipment are located on the main floor under the mezzanine.

Safety a Primary Consideration. Safety is built into the conveyor system. At each aisle location there is a pushbutton station on each row of racks at the aisle. It has three settings:

1. Indexing—which moves belt 36" when a carton from the strapping machine comes onto conveyor.
2. On—belt moves continuously at a speed of 50 feet per minute.
3. Off—conveyor stops, and a red pilot light comes on at all push-button stations.

When the lift truck operator desires to remove a carton he moves the selector switch to the "Off" position. In the "Off" position the conveyor cannot move under any circumstances nor can it be started from any station except the station where it was turned off. This feature eliminates the possibility of the conveyor being started while a lift operator is just starting to clamp or release a carton on the conveyor, possibly turning his machine over.

An interesting note is that the main floor of the warehouse is 7½ feet below the floor level of the shipping dock and 3½ feet below ground level at the shipping dock. This design was developed mainly because of the existing ground levels and enabled us to build the warehouse with a minimum of excavation.

The building is built of 8" jumbo brick and has a concrete floor with a hardener in it to prevent dusting. The roof is built of plywood covered with tar and gravel and has a 20-year guarantee. The shipping dock is open and has an 8-foot overhang to prevent driving rains from coming in. Fluorescent lighting is used; illumination is about 12 foot-candles. The building is sprinklered according to insurance specifications.

The operation of the warehouse has been very successful. Deliveries are speeded and better customer service is assured, with considerable savings in labor and sharp reduction in the number of damaged cartons.

Do all employees know how to use fire extinguishers?

■ IN A WOOLEN mill processing wool-synthetic blends friction at a bearing ignited lint which had accumulated on a card, and the fire spread rapidly.

After some delay, an uninstructed operator emptied three dry-chemical fire extinguishers of inadequate capacity on the fire. Others used several pails of water without success.

Sprinklers finally stopped the fire before it got beyond the next two machines, thus preventing an imminent catastrophe. Even so, carding production was lost for several weeks during repairs.

Better maintenance of bearings could have kept this fire from starting. And, of course, ample extinguishers should be available, with employees trained in their use.

Reprinted by special permission from the January, 1960, issue of *Factory Mutual Record*

18 Georgia mills had perfect safety records

■ A 23 PER CENT decrease in accident severity rate was the highlight of the 1959 Safety Contest of the Georgia Textile Manufacturers Association, announced Frank L. Carter, secretary, in the final contest report. The severity rate, Mr. Carter explained, is the number of days lost from work, due to work connected injuries, per million man-hours worked.

The average severity rate for the 118 plants participating in the 1959 contest was 282, as compared to 367 in 1958. The national average, as reported by the National Safety Council, is 382, Mr. Carter pointed out.

Another feature of the report was the perfect safety records of 18 mills which worked a total of 14,606,689 man-hours without an injury serious enough to cause a worker to lose time from his job on the day following the accident.

The following mills are those with perfect safety scores in 1959 (man-hours worked without an accident are shown in parentheses): U. S. Rubber Co., Reid Mill, Hogansville (388,046); Kingsley Mill Corp., Thomson (371,434); Reeves Bros., Inc., Eagle & Phenix Division, Columbus—Finishing Plant — (765,133) — Manufacturing Plant — (1,493,453); Chicopee Mfg. Corp., Lumite Division, Cornelia (736,175); J. P. Stevens & Co., Inc., Dublin Plant, Dublin (1,464,901); Riegel Textile Corp., Trion Division, Trion—Grey Mill—(4,775,972); Callaway Mills Company, Valway Plant, LaGrange (367,735);

Southern Mills, Inc., Atlanta (250,769); Chicopee Mfg. Corp., Buford (211,707); The Jefferson Mills, Inc., Jefferson — Finishing Plant — (197,937); Bibb Mfg. Co., Taylor Mill, Reynolds (157,145); Bibb Mfg. Co., Star Plant, Macon (88,786); Carroll Mills, Carrollton (115,424); Clarkesville Mill, Clarkesville (697,993); Dundee Mills, Inc., Plant No. 5, Griffin (681,800); Standard-Coosa-Thatcher Co., National Plant, Rossville (656,468); and Thomaston Mills, Bleachery Division, Thomaston (1,185,801).

The following mills had safety records that were best in specific categories: Lowell Bleachery South, Griffin—two accidents in 1,608,650 man-hours; U. S. Rubber Co., Stark Mill, Hogansville—three accidents in 1,546,374 man-hours; and B. F. Goodrich Textile Products, Martha Mills Plant, Thomaston—one accident in 3,747,169 man-hours.

Proving ground for fibers

How a fiber producer's product evaluation department conducts and uses "road tests"

by C. M. Alberto

Textile Development
Textile Fibers Department
The Dow Chemical Co.

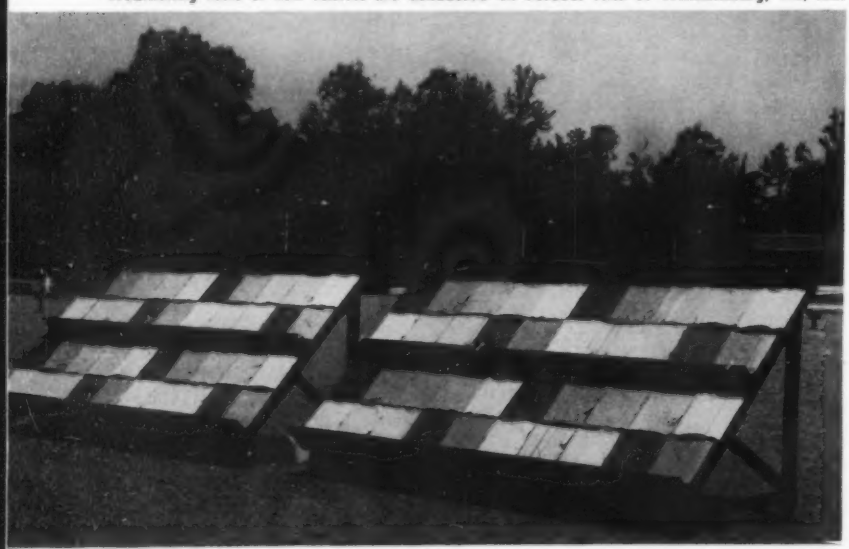
Exclusive

Photographic enlarger is being used in the process of documenting results of physical testing in the product evaluation laboratory.

BECAUSE the textile industry is one of keen competition and vast complexity, it is endowed with a restlessness which constantly seeks for improvement and betterment in our standards for clothing, home furnishings, and industrial fabrics—in brief, our standard of living.

No one fiber currently available—natural or man-made—holds the answer to all the varying demands of the trade. But the public, often bewildered by the vast array of fiber names on store labels, still needs to know how current products on the market perform—and also how fabrics made from newly discovered fibers will perform.

Weathering tests of new fabrics are conducted on outdoor rack at Williamsburg, Va., lab.



Product Evaluation. Our textile product evaluation group at Williamsburg, Va., is an integral part of the company's textile development operation. The basic responsibility of product evaluation is to test and to evaluate products made from Zefran acrylic fiber, Lurex metallic yarn, and Rovana saran microtape—the three textile products currently being marketed by Dow.

The laboratory does a good deal more than one might suspect. Even though it was primarily established to provide a general testing service for commercial or would-be commercial fabrics and yarns, the specific demands on this

laboratory are for all types of sales services. For example:

1. To help mills in supplementing their testing information.
2. To service cutters with fabric performance information.
3. To service the consumer by way of garment tags containing fabric care information.
4. To supply general data to retail store training programs and to home economics schools throughout the country.
5. To provide sound groundwork for advertising and publicity copy.
6. To gather information for internal study on fibers and their performance.

All of this makes the product evaluation laboratory a kind of nerve center for our internal and external activities at the commercial or semi-commercial level.

The product evaluation group handles a myriad of service requests—for fiber identification, for the cause or causes of fabric defects, fabric fastness properties, yarn quality measurements, and all sorts of "trouble shooting" on current and pending sales programs with mills.

Purpose. Aside from being a service to the industry, the functional role of product evaluation is to protect our interests in the fiber market. This is accomplished by assisting in the planning of specific applications programs at the development level and by establishing tests to evaluate certain fabric advantages that would enable us better to judge proper end uses from our textile fibers.

The strengths and weaknesses of a fabric or garment are defined by product evaluation so that guidance can be offered to either the research or sales groups—between which development stands as a vital connecting link—in order that programs may be expedited or dropped in certain areas of the textile market.

How It Works. Product Evaluation works on a fabric in the following manner. In the early stages of a field development program, a complete dossier on the fabric is assembled. This file contains everything from data on fabric construction to complete garment handling procedures and recommendations.

First, the fabric is labeled for positive identification, and samples are automatically submitted to the extensive fabric library we have accumulated. The sample is accompanied with specific information on product mix, blend level, dyestuffs and finish employed, as well as the manufacturing sequence.

Extensive physical tests are then made on the fabric, some of which will be discussed below.

Facilities. The testing laboratory includes all basic equipment necessary for performing about fifty different tests on fibers, yarns, and fabrics. In addition, product evaluation has photographic equipment which serves a useful role in documenting the operation of the laboratory.

ASTM, AATCC, Federal Specifications, and other pertinent test methods as well as procedures from the American Institute of Laundering, National Institute of Dry Cleaning, American Standards Association, and Textile Distributors Institute are used for guidance. Many of the tests performed are modifications of existing methods and procedures. The standards in many cases result from practical experience.

Spot checking is done occasionally at outside commercial testing laboratories to corroborate internal results.

After testing has been completed, the data are tabulated, in-

Fabrics are tested for pilling in random-tumble tester . . .

. . . then pills formed on the fabric are counted.

TI will preview the

ATLANTIC CITY SHOW

in the May issue

Several machines which are to be shown for the first time are described in the "New Product Parade" section of this issue (pages 205 - 219).

terpreted, and issued in a project report, which is distributed to interested persons. Complete files are kept on each project and a cross index is maintained with the report number, name of mill or company, and material as points of reference. A punch card system is also used for ready access to specific file data on such subjects as denier, staple length, luster, product mix, system of manufacture, and specific tests. Copies of each report, along with specimens, pertinent photographs and background information are maintained in the product evaluation file for use in meetings with technical personnel of interested companies.

Whenever the results of a fabric evaluation do not measure up to standards, immediate action pointing out the matter is taken by special report. All interested parties are kept informed until the condition is corrected.

In addition to the complex physical testing performed on a fabric, the practical aspects of materials from the consumer standpoint are evaluated. The laboratory is equipped with popular brands of automatic washing machines, an automatic dryer, a wash wheel, extractor, and flat bed press.

Laboratory Testing Versus Wear Testing. Often it is difficult to correlate laboratory tests for such properties as abrasion resistance, wrinkle recovery, appearance retention, and others with actual wear. Wear wrinkles may persist through washing and drying and contribute to the wrinkled appearance of a garment after laundering. Many of the variables afforded by actual wear testing must be considered in order to counteract limitations imposed by conducting machine testing trials only.

For screening purposes, fabric swatches are checked in a viewing booth and compared with the standard appearance retention samples. When fabrics have been used as test specimens, a final check is made on garments sewn from the fabric before candidacy for wash-and-wear can be considered.

Performance of a garment during wear will be a factor affecting its performance through washing and drying. Wear testing is thus included in the study.

For a garment to be classified as completely washable, it is washed at least five times, using rigorous home laundry methods, with care being taken to measure the garment both flat and on a model to ensure that there is no apparent shrinkage. Loss of color, bleeding, and appearance of the fabric are also noted. If a fabric is to be used in a dry-cleanable garment, the effect of commercial dry cleanings is tested.

While physical testing can satisfy many of the demands of the mill, it alone cannot satisfy the needs of the consumer. To be beneficial, laboratory data must be supplemented by practical use-testing. Consequently, a wear program has been instituted. Several hundred items containing Zefran, Rovana, Lurex, and competitive natural and man-made fibers are currently being use-tested by textile fibers department personnel.

Records of these wear evaluations are maintained on computer-type cards and information on the number of days worn or used, times cleaned, and method of cleaning are tabulated. Comments regarding tailoring, comfort, wrinkling, press and pleat retention, staining, odor retention, static, snagging, scorching, glazing, clinging, and color fastness are also solicited. In most instances, competitive garments of similar construction are included in the wear test program.

To avoid prejudices, the wearer does not normally have information regarding the fiber content of the item he or she is evaluating. Garments are often returned to the product evaluation laboratory for laundering so that a first-hand knowledge is available on the handling characteristics of the fabric after it is sewn into a garment.

Other Data. In addition to the wear data being accumulated for correlation with laboratory testing, technology on cutting, sewing, and garment handling is gathered from such programs. Excellent cooperation with cut and sew tailors has been maintained and many of the garments currently being evaluated have been sewn in wash-and-wear establishments with materials which have been specifically designed to withstand arduous washing and drying procedures.

Thus, laboratory testing results along with the actual wear testing of garments give a thorough evaluation of the fabric. Mill customers without benefit of their own testing facilities can request and receive copies of testing results with a concise interpretation.

Final Judge—The Consumer. Today's consumer is of necessity wiser than he was several years ago. The textile industry is increasingly aware of this new consumer sophistication. With this new consumer in mind, we insist that all proposed fabric programs pass through the careful analysis conducted by the product evaluation laboratory before advertising, publicity, and other merchandising effort is expended on behalf of the final product.

The company feels that complete consumer satisfaction is the ideal and that this can only be achieved when the product lives up to every claim made for it. Benefit to the mills in having this information and to the very reputation of the fiber being sold into the market is obvious.

Dow, like other fiber producers, finds product evaluation not only a service to the company itself, but a "must" for both its immediate customer, the mill, and the ultimate judge of the industry's products—the consumer who expects more and more from the fabrics he wears and uses.

Franklin-Dyed Yarns

THE ANSWER TO FASHION'S INSATIABLE DEMANDS

417-9

Fashion is synonymous with change and variety. Franklin Dyed Yarns facilitate both of these elements. They are obtainable in a comparatively short time in *custom dyed* colors — processed to *your individual* specifications. Franklin Dyed Yarns are used by many fashion leaders, because:—

1. With the largest package dyeing capacity in the world and 4 plants, Franklin is a highly dependable source of supply.
2. The Franklin Compressible Spring assures uniform density of packages and hence uniform shades.
3. Franklin's unequalled laboratory facilities and half a century of experience assure strict quality control and the know-how to cope with difficult dyeing problems.

Get in touch with our nearest plant or office and let us quote on your yarn dyeing requirements.

Franklin Process
COMPANY
A DIVISION OF INDIAN HEAD MILLS, INC.

LARGEST PACKAGE DYERS IN THE WORLD

Dyers of natural and synthetic yarns on Franklin compressible spring exclusively.
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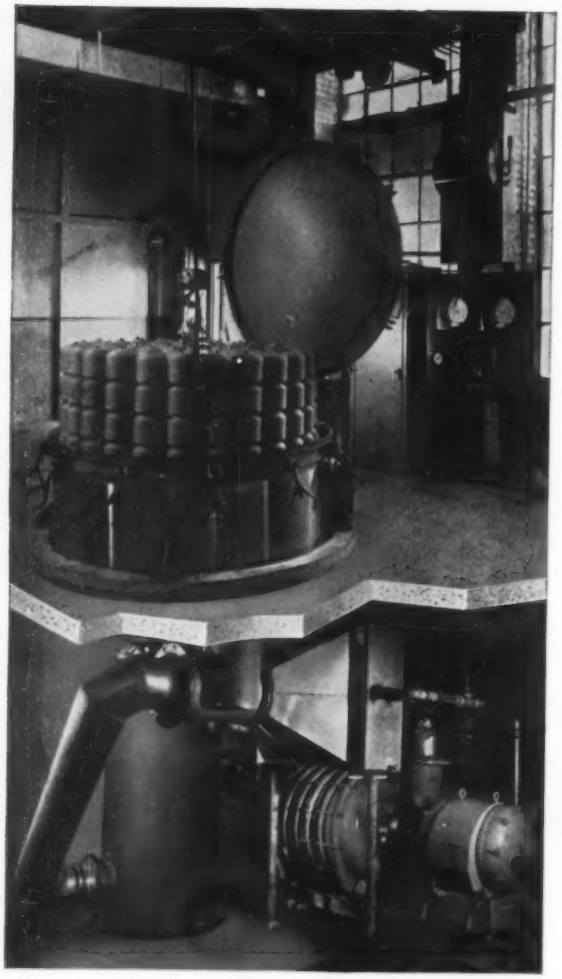
New York Office . . 111 West 40th Street Providence Office . . 611 Turks Head Building



Composite photograph of one of the recent installations of the Turbo Extractor-Dryer. Equipment in basement occupies space 11 x 11 feet.

1/2 the cost... 1/2 ...the space

with the new TURBO recirculating-type extractor-dryer

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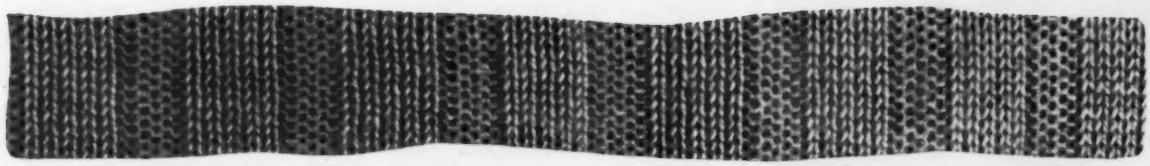

KNITTING SECTION

Ready for the 60's?

MACHINERY manufacturers are confident that 1960 will be a notable year for purchase of latest model machinery by knitting mills, with favorable profits for the knitting industry in 1959 providing the needed funds for modernization. Many leading manufacturers of knitting and processing machinery have already largely sold their production for this year.

A significant fact is that knitters sold more of nearly everything, and the total volume came close to current capacity. During 1960, the same circumstances are expected, and the situation should fortify management's too-often-relaxed determination to get a reasonable profit on every dozen sold.

Some of the optimistic factors which should affect knit goods favorably are high consumer income, population "mix" trending toward the age groups which buy the most textiles, continuation of a percentage shift of total expenditures in favor of consumer goods. Most market factors appear good; however, they do not guarantee anyone a portion of the market. A share of the market at a reasonable profit is the result of management policies calculated to secure that result.

A recent survey showed that manufacturers in this country planned to boost plant and equipment spending in 1960 by about 20 per cent over 1959, and indications are that there is a tendency toward understatement of anticipated expenditures.

Some management officials have suggested that the industry has learned to some extent by experience how to "level out" the traditional economic cycles in textiles. Among the countermeasures made to combat the problem is the policy of adjusting production to sales and promoting sales on the firm basis of QUALITY and STYLE. This premise immediately brings to the forefront numerous possibilities and ways to reach the desired level of appeal to the customer and consumer.

One nationally recognized authority in the knitting industry recently stated: "We've actually seen socks involving so many short cuts in manufacture as to constitute an actual fraud on the consumer." This should be a startling revelation in view of the equipment and know-how available in this country to produce goods of unexcelled quality and style to compete advantageously in this country and abroad.

The optimistic note sounded by machinery manufacturers is concrete evidence that many knitting mills have active plans to forge ahead by installing the most modern equipment. Quality, style, promotion, and profit follow at the discretion of management, once the equipment is in place.

The accompanying articles may serve as examples of the trends and accents employed in various phases of modern knitting operations. Although these examples hardly scratch the surface, they may serve as landmarks, indicating to some extent the trends in management and manufacturing practices today.

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Control combed cotton yarn properties to reduce seconds 187

Standard procedure in handling Agilon: Hold the bobbin, not the yarn, to avoid disrupting the wind and changing the bobbin density.

How to knit Agilon sweaters

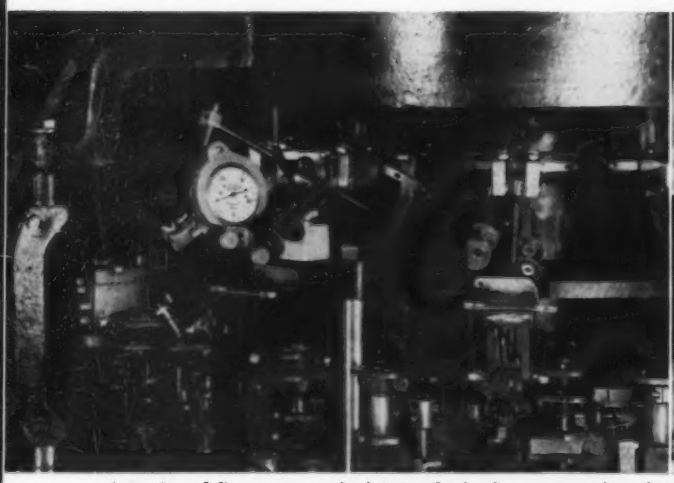
by Ripley Edge
Exclusive

AGILON textured yarns, edge-crimped, developed, and heat-set in a continuous operation between supply package and sales package, provide excellent results in sweaters knitted on circular, full-fashioned, and flat bed machines, mill results indicate*.

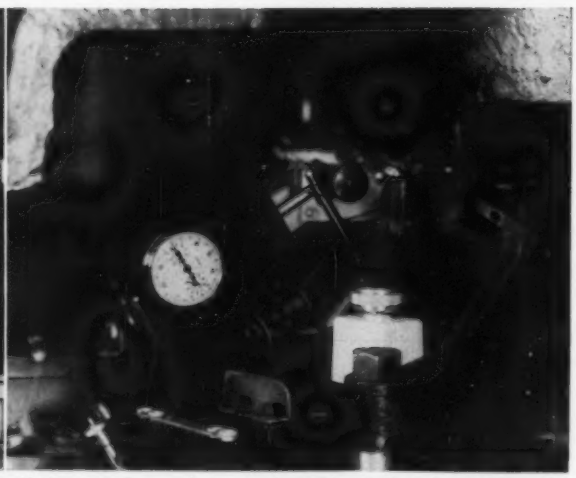
Ironically, the major cause of problems in the knitting of sweaters of Agilon yarn is the unusually high degree of uniformity which the edge-crimping process produces. This uniformity quickly reveals deficiencies or poor adjustments in the knitting machine which would not be easily recognized in the knitting of rough or uneven yarn. The uniformity of the yarn results in a knitted fabric which exhibits a uniform, smooth, streak-free appearance, with no distorted effect.

Agilon textured nylon yarn is a continuous filament yarn to which torque-free elastic and bulk properties have been imparted by physical modification. The novel process, involving the passing of the filaments over an edge, has an unlimited range capable of handling monofilaments and multifilaments from 15 denier to 15,000 denier. Multiple ends can be processed simultaneously and plied as

*The observations and recommendations in this article represent actual experience in numerous mills.



A tension of five grams at the knitting feed, after passage through the guides, provides best results. This can be checked while the machine is in operation by using a magnetic clamp with a yarn tension meter such as the Kidde Tensiometer shown in the above photo.



Uniformity of yarn feed can be achieved through measuring the amount of Agilon yarn delivered during each revolution of the knitting machine cylinder. In the photograph above, a Hamilton Yarn Meter is shown attached by a magnetic holder to the revolving machine.

an intergral part of the edge-crimping process.

The "hand" of Agilon yarn can be varied from one of soft silkiness to any desirable degree of firm or crisp texture. In multifilament yarns, the softness of spun yarns and the smoothness of continuous filaments are combined. These and other attributes give to medium-denier Agilon yarn particular usefulness in women's sweaters.

In sweater fabrics, Agilon yarn provides the characteristics of fabrics constructed from high-bulk spun yarns but adds non-pilling, absence of broken filaments, and greater durability.

To the high abrasion resistance, strength, and toughness of nylon, Agilon yarn adds bulk, comfort, and warmth. Shape retention, softness, and loft are not lost by washing the fabric.

To obtain these excellent characteristics, certain conditions, readily obtainable, must be observed.

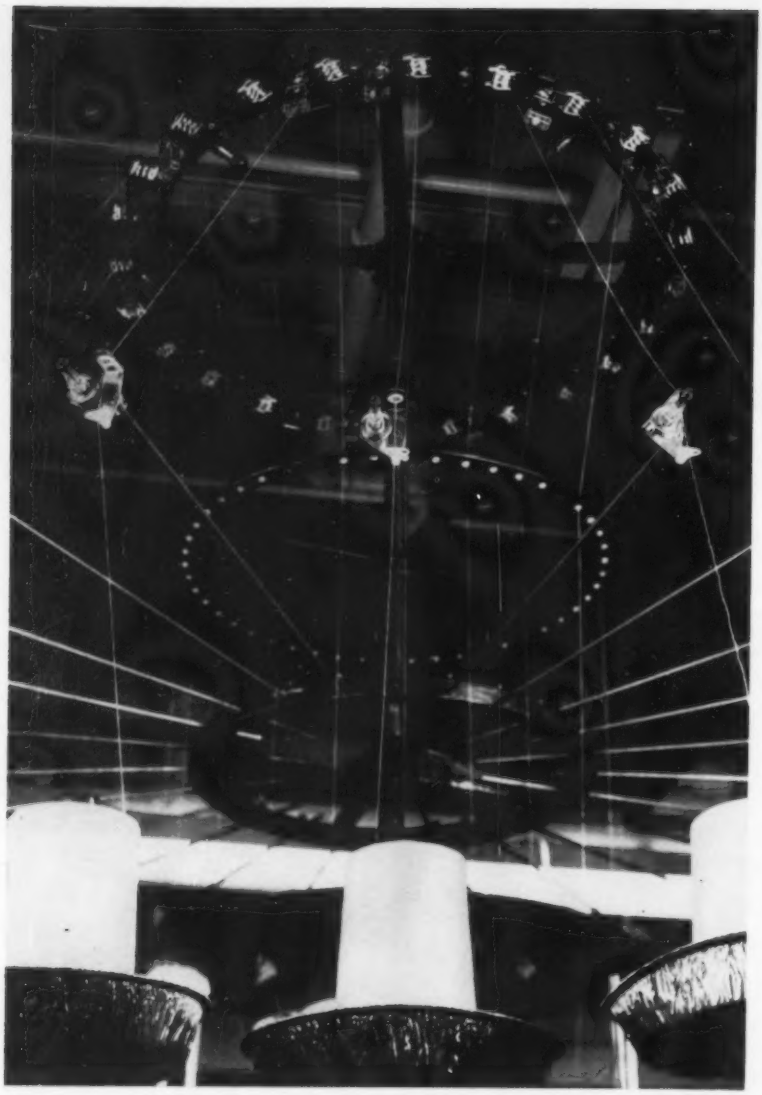
General conditions

Humidity should be between 50 and 65 per cent, within a temperature range of 70 F to 80 F. Relative humidity should be measured periodically, if possible with a sling psychrometer near the yarn on the knitting machine, and compared with the humidity control instrument reading. If the two readings differ considerably, adjustments should be made to bring the humidity into line with the proper percentage figure.

In mills which do not have controlled humidity, the humidity can be expected from time to time to drop below the desired level. This will add certain difficulties in handling yarn since, in common with raw nylon, Agilon yarn rapidly increases in liveliness as the humidity drops below 45 per cent.

Standard procedure for handling yarns holds for Agilon yarn. It should be handled by holding the end of the package, thereby preventing the fingers from coming in contact with the yarn. This will prevent the ends of yarn from becoming rolled on each other,

Bulked Agilon yarns provide excellent properties in classic interlock and bulky V-bed constructions, as well as in other types.



Agilon yarns are delivered from precision-wound packages and are fed through guides, bypassing tension devices. Stop motions atop machine should be set at low, uniform tensions.

subsequently causing poor delivery.

All guides, stop motions, and disk tensions should be thoroughly checked and examined for cuts or roughness. The use of satin-finished chrome or ceramic guides and tension devices has proved helpful in many mills.

The following minimum yarn sizes have been found satisfactory for interlock and full-fashioned machines:

Interlock	
70 denier, 2 ply	(16 cut)
80 denier, 2 ply	(14 cut)
100 denier, 2 ply	(12 cut)
Full-Fashioned	
70 denier, 4 ply	(24 gauge)
70 denier, 5 ply	(21 gauge)
70 denier, 6 ply	(18 gauge)

There are, however, certain differences in size needles used in the same cut by some machinery manufacturers which permit or necessitate variations from the above. Because of its bulking action, a yarn size 25% smaller than that used in wool is preferred. This applies to flat as well as circular and full-fashioned machines.

The stitch count on the machine used will vary according to both the type of fabric desired and the pull on the draw-off. Needles should be properly aligned, stitch cams should be in good condition, and any chattering of needles in the tricks eliminated.

In general, the looser the stitch, the greater the width of fabric, the greater the bulk, and the lower the weight per square yard. In contrast, a tighter stitch gives less width, less bulk, and greater weight. Too loose a stitch, however, produces a soft fabric with increased tendency to pull. Therefore, the proper stitch setting must be somewhere between these two extremes.

As a general rule, very little tension should be used in the knitting of sweaters from these yarns. The following yarn meters are used with good results:

1. Tensiometer—for full-fashioned and interlock machines.
2. Hamilton Meter — for revolving cam interlock or jersey machines.
3. H.A.T.R.A. Meter — for revolving cylinder interlock or jersey machines.
4. Knit Master—for all latch needle machines.

On Scott & Williams and Phillips' interlock machines, the tension disks are removed entirely. Knitting is carried out with a tension of approximately five grams. Readings are taken about six inches above the needles.

On a full-fashioned machine, only that tension which will give a good selvage is desirable. In this respect, the setting of the yarn carrier is very important, since with a small amount of tension, the carrier must be set correctly to give a good selvage.

On interlock and other types of circular knitted fabrics, it is a prevalent practice in some areas to place the tube on a frame, stretch it, and then steam it in this condition. This process provides a stable width in excess of the relaxed width, but there is a definite position to which a given piece of fabric will retract, regardless of how wide it is stretched in this steaming process. For example, in certain research experiments, identical pieces of 18-cut interlock fabric were steamed and cut to 48 inches, 46 inches, and 44 inches. All returned to a cutting width of 42 inches. Pieces of fabric were knitted at different stitch lengths, subjected to the same experiment in steaming, and in each instance

all returned to the same width.

Still another method of achieving greater fabric width is to vary the weight of yarn according to the cut of the knitting machine. Tests have shown that, on an 18-gauge full-fashioned machine with a 28-inch needle head, it is necessary to go to a 6/70 yarn to get the width obtainable on a 21-gauge with 5/70 yarn.

Other tests have shown that the relaxed fabric, after removal from a 21-gauge machine using 5/70 denier yarn, ideally should be 20 courses per inch. This, however, is an optimum figure, and can be used only as a starting point because different manufacturers will want a different hand and so will use different machine setups to achieve the desired width and weight of fabric.

The bulking of Agilon yarns takes place in scouring and later in finishing operations. It is necessary, however, to consider bulk at the knitting stage so that the knitted fabric will exhibit the desired bulk, hand, and texture. The size of the loop in knitting determines the fabric bulk, since a fabric made with small loops bulks less than one made with large loops.

The following knitting procedures have been found satisfactory for interlock and full-fashioned machines.

Interlock

1. Put cones of Agilon yarn on machines.

2. Check tensions from one package at all positions to determine the condition of guides, since cuts and grooves will cause high tension.

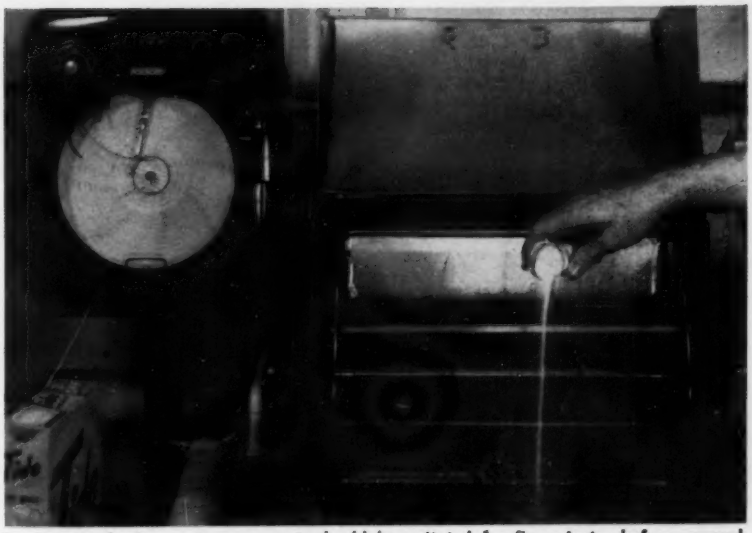
3. Check feeds with yarn meter or Knit Master and adjust if necessary.

4. Knit after all settings are properly adjusted.

5. *Machines*:
Cut: 18½ - 20
Yarn: 70 denier, 2 ply

6. *Knitting Tensions*:
5 grams at feed

7. *Yarn Guides*:
Check for cuts, dirt, etc. Use hard, ceramic type—not porcelain —if possible.



For best results in sweaters, garments should be agitated for five minutes before removal of oil to promote interfiber lubrication. After this agitation, detergent is added. Preferred detergent is Orvus Hytemp granules or their domestic equivalent, Tide.

8. *Stitch Settings*:
Body stitch — Comparatively loose — 14 CPI.
Cuff — Very tight.
Stitch Cams — Adjust with yarn metering device to a tolerance of 2.0 per cent.
Fabric Take-Up — Heavy tension.

9. *Fabric Shrinkage After Scour*:
Lengthwise: 25 to 30 per cent
Widthwise: 0 to -5 per cent
Area: 25 to 30 per cent

Full-fashioned

1. Put cones of Agilon yarn on machines.

2. Using one section, knit a body blank, then scour and measure it.

3. When the proper size, appearance, and hand of the blank are obtained, and the correct machine adjustments made, knitting may begin.

4. *Lagging*:
In production, ribbed bands and cuffs should be lagged or aged twenty-four or more hours before topping.
Knitted blanks—fronts, backs, and sleeves—should similarly be lagged before seaming and looping.

5. *Fabric Shrinkage*:
Lengthwise: 25 to 30 per cent
Widthwise: 0 to -5 per cent
Area: 25 to 30 per cent

Finishing

Finishing is by far the most important step in the manufacture of sweaters of Agilon yarn. To insure the highest possible quality, prevent streaks, and provide proper bulking, proceed as follows:

Scouring

1. Place in net bag, being careful not to overload or underload.

2. Pre-tumble in tumble dryer five minutes at 180 F, then cool gradually to 100 F with door shut. This process performs an important function in relaxation.

3. Put in rotary baffle laundry machine and agitate at 80-90 F for five minutes. The fabric is agitated in this manner without detergent to release the stitches without removing the oil from the yarn. If a paddle machine is used, be sure fabric does not stay in dead spots in the vat.

4. Add 1 to 2 per cent detergent on weight of goods. Use Orvus Hytemp granules, or similar detergent.

5. Raise temperature as rapidly as possible to 180 F and agitate for fifteen minutes at this temperature.

6. A gradual decrease in temperature minimizes the risk of creasing, sometimes caused by sudden or shock cooling.

Continued on page 192

Screening dyestuffs is an important function of the laboratory at Color-Knit Dyeing Corp. Here a plant technician makes a routine dyeing to select proper dyestuffs for a new shade on Orlon. Laboratory dyeings are a rapid means of exploring critical dyestuff properties which could cause difficulties in machine dyeing.

Sample dyeings often precede production dyeing of a shade proved troublesome in the lab. New bleaching, scouring, and finishing formulations are also evaluated here.

Preventing defects in

by Edward Szlosberg
President
Color-Knit Dyeing Corp.

Exclusive

DURING the last several years much experience has been gained in dyeing and finishing knit fabrics of Orlon acrylic fiber. Many of the techniques in use today have become so highly developed that they have become widely accepted by the dyeing trade. This is not to say, however, that dyeing and finishing routines can be easily followed without encountering problems. On the contrary, many of the problems require a scientific approach to prevent defects which in many cases are impossible to remedy.

For the most part, defects can be easily identified by the experienced dyer-finisher. Needless to say, correct identification of a defect is absolutely essential before its causes can be removed. Perhaps the principal cause of defects is improper procedure in any of the dyeing and finishing steps. It is often found that the most unusual defect has been caused by improper procedure in an early operation. Then, as the fabric passes through subsequent steps and routines the defect is compounded, acquiring unusual characteristics that require experience for correct diagnosis.

There are of course defects which are not entirely caused during dyeing and finishing. These can be caused or aggravated by the condition of the raw material or by improper procedures in knitting. In this article, however, only the commonest defects of dyeing and finishing will be discussed, together with their causes and their prevention.

Procedures at Color-Knit. At the outset, it may be worthwhile to describe briefly the equipment and dyeing-finishing cycles that are in use at Color-Knit Dyeing Corp., Elizabeth, N. J., even though these are universally known. Our dyeing equipment is of the conventional overhead paddle design. The equipment in our plant ranges in capacity from 15 lb for sample work, to 600 lb for production lots.

This type of equipment, as everyone knows, is equipped with a paddle wheel which revolves slowly through the top portion of the dye liquor to create a mild agitation of the bath. The action of the paddle wheel, together with that of the steam, which is injected at the bottom of the vessel, causes the bagged strips and sweaters to move slowly in a rotary direction. For the purpose of this discussion we must assume that the equipment is in good working order and that the paddle wheel revolves at a constant rpm.

For dyeing Orlon, two color classes are used: basics and direct acetates. Their selection and application will be discussed later in greater detail. However, it may now be said that the basics are used largely for dyeing medium and heavy shades in an unlimited range, while the direct acetates are used largely for dyeing light shades and some medium shades.

The dyeing cycle of the basics is four hours, while for the direct acetates it is three hours. These

In bagging material for dyeing, much skill is required to fold the material in such a manner that no twisting will occur during dyeing. Also, the bag must be pinned or closed in such a manner that the material will have a certain amount of looseness for freedom of movement. Furthermore, the proper number of bags, each of proper weight, must be used to prevent overloading of the machine. And the bags themselves must move freely through th dye liquor. Above, a bagged lot is given a final inspection before dyeing.

dyeing Orlon sweaters

cycles also include after-scouring and softening. Following these operations, the sweaters are dried in tumble drying equipment, which is illustrated in an accompanying photograph.

If dyeing and finishing procedures have been soundly planned, and properly carried out, they should produce a level-dyed and well-penetrated fabric with no adverse effects either on the Orlon fiber or on the nylon separator thread. Unfortunately, errors sometimes occur, even though routines are simple to follow. And some shades require more exacting control in dyeing than do others, if level dyeings are to be obtained.

Without doubt, there are numerous possibilities for defects to occur. In the following, however, only the most common defects will be listed and discussed. They are as follows:

1. Uneven dyeing
2. Creased material
3. Poor hand or texture
4. Improper dimensions
5. Difficult separation of bodies
6. Spots and stains
7. Yellowing

Uneven dyeing

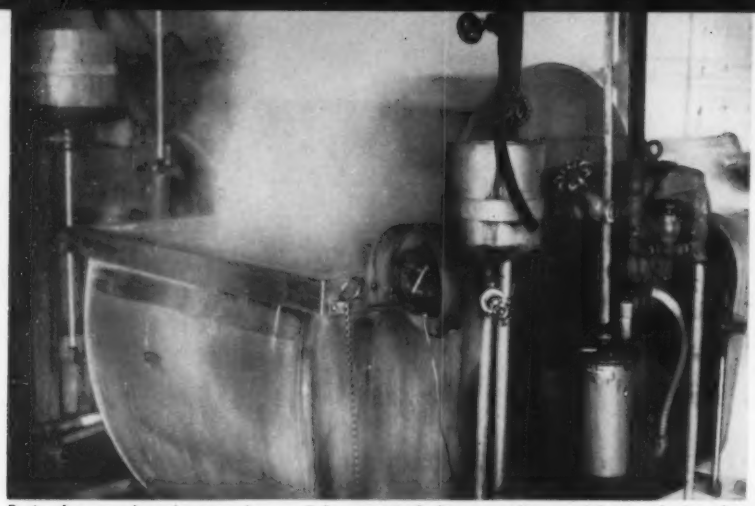
This defect is a dyer's constant worry; not only because it requires constant precautionary measures, but because it can escape inspection before shipment. Of course, even the most casual inspection would detect a badly dyed lot—when dyeing and finishing procedures have been poorly carried out. But there are varying degrees of unevenness, often hardly distinguishable by the untrained eye, particularly when the unevenness does not occur within one strip but between strips. The danger in such a case is that some unevenly dyed material is shipped to the customer, who does not discover the condition until the garments are made up.

There are several common causes of uneven dyeing. They will now be discussed:

Tight Bags; Machine Overloading. In bagging material for dyeing, much skill is required to fold the material in such a manner that no twisting will occur during dyeing. Also, the bag must be pinned or closed in such a manner that the material will have a certain amount of looseness for freedom of movement. Furthermore, the proper number of bags, each of proper weight, must be used to prevent overloading of the machine. And the bags themselves must move freely through the dye liquor.

To explain proper loading further, let us assume that 120 lb of material are to be dyed in a machine of 200 lb capacity. If the lot is comprised of six bagged pieces, each weighing 20 lb, the movement of the bags through the dye liquor will be very sluggish and will undoubtedly cause unevenness. For easier movement, the lot should be broken up into more pieces for lighter individual weights. Such faults in bagging and in over-loading as pointed out above will in most cases cause unevenness which is easy to identify.

It might also be mentioned at this time that a proper ratio of



Basic dyes produce best results on Orlon, particularly on medium and heavy shades—but they require sound formulation and careful control over temperature to prevent uneven dyeing. Cooling after dyeing is a critical procedure; if done too rapidly it will cause creasing.

If drying is not properly carried out it can destroy the results of the best dyeing. Overdrying can cause changes in bright shades, while improper loading and too rapid cooling can cause creasing. Temperature controls and instrumentation are checked regularly.

dyeing liquor to material is essential. At Color-Knit Dyeing the ratio of dyeing liquor to material is established at about 15-20 lb to 1 lb of material. For example, for 200 lb of material about 500 gal of dye liquor are required. Assuming that each bag is of proper weight, this ratio should offer easy movement of the bags in the vessel.

Improper Selection of Dyestuffs; Improper Procedures in Dyeing. Two of the most important considerations in dyeing Orlon knit fabrics are the selection of a color class and the selection of individual dyestuffs. For practical reasons, even the most experienced dyers have a tendency to use direct acetates in preference to basics. This can be easily seen from the accompanying list of the advantages and disadvantages of each color class.

From the comparison, it may be observed that the basics do not possess the advantages of the direct acetates, and their application calls for infinitely more precautions and attention to detail. Yet it is a fallacy to use direct acetates simply because they offer some attractive advantages, such as ease of application, because their usage is not altogether trouble-free, and in many cases the end result is not equal to that obtained with basics.

But there are cases when it is absolutely necessary to use basics, because brightness may be called for, or a particular shade cannot be matched with direct acetates. This advantage of the basics can be expressed in another way: The basics can be used to match every shade that is possible with the direct acetates, but the direct acetates cannot match every shade that is possible with the basics.

The property which chiefly distinguishes the two classes, and influences formulation and the conditions of application, is that of affinity for the Orlon fiber. While the direct acetates possess limited affinity for the fiber, the basics have a decided affinity, although it varies somewhat among individual dyes.

Acetates. The application of direct acetates calls for a relatively simple formulation and rather simple procedures in dyeing, which, however, must take into consideration the following:

1. That the material is kept at the boil long enough to allow the colors to level throughout the lot and thus prevent unevenness.

2. That the dyestuffs are not allowed to precipitate, either through "tarring out" at the boil, or through the slow precipitation on the cool back. The latter can be prevented by the use of nonionic solubilizers, such as those of the Igepal CO type.

3. That the further precipitation and surface color are removed by the back scour after dyeing. This treatment also improves fastness properties.

Thus, certain disadvantages of the direct acetates can be overcome. But their lack of brightness is a recognized shortcoming and their poor build-up can be improved only slightly, as through the use of acetic acid.

When dyeing with acetates, the temperature can be raised quite rapidly because dye absorption takes place at the boil—after the outer layer, or skin, has been opened to allow dyestuff particles to enter. Any unevenness can be overcome by prolonged boiling. In practice, at least one hour and usually 1½ hours are required at the boil to obtain satisfactory evenness. Sampling can begin

Comparison of Direct Acetate and Basic Colors for Dyeing Orlon Sweaters

Direct Acetates		Basics	
Advantages	**Disadvantages**	**Advantages**	**Disadvantages**
1. Simple to formulate.	1. Their absorption is limited; hence, they do not build up to deep shades.	1. They build up well, making possible deep shades.	1. Rapid absorption rate, requiring chemical agents in formulation and careful control of temperature to insure level dyeings.
2. Possess a slow rate of absorption and level very well.	2. In medium shades, their fastness properties are not satisfactory.	2. They are brighter than acetates, making possible shades unobtainable with the acetates.	2. Dyeing cycle is longer than for the acetates by an hour.
3. With few exceptions, such as blue-green and anthraquinone blues, their dispersibility is good.	3. They are not bright and can only be used for more subdued shades.	3. They have outstanding fastness properties, even in the deepest shades.	3. They do not dissolve easily, requiring boiling water and acid, followed by straining.
4. Their stability within normal pH ranges is good.	4. Their range is limited and therefore their "light swing" (the change of shade in passing from artificial light to daylight or fluorescent light) is not satisfactory in all cases.	4. Their shade range is quite complete, including blacks and navies.	4. In storage, they have a tendency to "fly," creating the danger of spotting fabrics.
5. At the boil, most of their members perform well.	5. Some members have a tendency to precipitate or "tar out" at the boil.		
6. In pastel and light shades, their fastness properties are satisfactory.			

after 45 minutes at the boil, and additions are best made at the boil because there is maximum agitation, and the addition has an excellent chance of reaching every part of the material in uniform concentration. After the last addition is made, the bath should boil for about half an hour.

Then, a solubilizer is added if necessary, to prevent the slow precipitation of dyestuffs on cooling; and before finishing, the goods are given a back scour to remove surface color.

The process of cooling after dyeing is a critical one. It will be discussed in a more appropriate place.

Basics. In formulating and applying basics the ways in which defects can occur are quite numerous. A basic-dyestuff formulation contains the following:

Retarding agent—to prevent rapid "strike-on" of dye.

Acid—to adjust pH to proper value.

Buffer—to maintain proper pH value.

Salt—Glauber's salt.

Dyestuff — properly dissolved and strained.

The critical points in applying basics are in the use of a retarding agent and in the control of temperature, because, as stated earlier, basics have a strong affinity for Orlon. If the temperature is raised at the rate of 2° per minute, there is good possibility that the Orlon will dye evenly, unless other factors are not controlled or are not in proper balance. Too rapid a rise in temperature, particularly at temperatures approaching the boil, can most assuredly cause unevenness. This kind of unevenness can be easily identified by the experienced dyer-finisher.

In addition to proper control over temperature, dyeing with basics calls for the use of a suitable retarder in the proper quantity. In effect, the retarder occupies the fiber dyeing sites, gradually relinquishing them to the dyestuff as the dyebath reaches higher temperatures. In this manner, the retarder prevents rapid absorption of dyestuff.

Chemically, retarders are cationic agents, but they are not all exactly alike, in chemical structure or in behavior, and hence must be selected with care.

There is no set rule which governs the amount of retarder that will produce best results. The amount used is based largely on experience and on a working knowledge of individual colors. The amount cannot be based on the percentage of dyestuffs in the formulation, because dyestuffs vary in rate of exhaustion. Certain basic dyes exhibit a faster "strike-on" and thus require more retarder for evenness. On the other hand, there are dyes which go onto the fiber only with great difficulty. In such a case the use of excessive amounts of retarder is of no help, and besides can have very bad results.

In general, we have a tendency at Color-Knit Dyeing to use larger amounts of retarder (except where dyes prohibit larger amounts), since we find this practice promotes evenness.

Since basics do not level to any appreciable extent, prolonged boiling is of no avail. A state of equilibrium is usually reached in the bath within one hour at the boil, and sampling can begin un-

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less the dyeing condition has been upset by the addition of dyestuff or of a chemical product, or by a decrease or increase in the dyeing volume. When the dyeing is considered "on shade," the critical process of cooling begins.

Not mentioned before, although of great importance in obtaining level dyeings, is the selection of individual dyestuffs. The many properties which a dyer must evaluate before selecting dyes for formulation are as follows:

1. Absorption rate and levelness
2. Solubility or dispersibility
3. Stability or sensitivity to pH value
4. Performance at boiling temperatures
5. Affinity for Orlon
6. Color value and economics
7. Fastness properties

Again, laboratory and sample machine dyeings are of great aid in evaluating dyestuffs, and they are frequently resorted to at Color-Knit Dyeing.

Creased material

A most common cause of creasing is over-loading a machine's capacity. As a hard and fast rule, it is quite safe to overload up to 10% of a machine's ideal capacity. Certain machine sizes, generally the smaller ones, lend themselves more readily to over-loading. But even here the rule of 10% should apply.

A more common cause of creasing is the too rapid cooling of the bath after dyeing. The most critical temperature drop is from the boil on down to about 180 F. This drop should take at least 20 minutes. From 180 F downward, cooling can proceed at a much faster rate.

To insure a gradual rate of cooling, and to prevent uneven cooling of the load, each dyeing machine at Color-Knit Dyeing is equipped with a perforated pipe line, through which water is fed at a gradual rate, to reach all parts of the dyeing vessel at the same time.

Creasing can also occur during the drying cycle. If the Orlon strips are too long, they often twist in the tumble dryer. If this occurs when the temperature is sufficiently high, a permanent crease is formed. To prevent normal folds from remaining in the same position during drying and thus show up as creases, the direction of tumbling is periodically reversed throughout the drying cycle. Essentially the same precautions should be taken in cooling after drying as in cooling after dyeing, for the temperatures used are approximately the same, being slightly higher—220 F—in drying.

Poor hand or texture

On the whole, achieving the type of hand that a customer specifies is not a serious problem once a technique has been established for the finish. But some practical experimentation may be required beforehand. More than anything else perhaps, practical know-how is required because the formulation itself is quite simple, being based on a cationic type of softening agent.

Finishing takes place after dyeing, in a fresh bath containing proper amount of softener, for about 20 minutes at 110-120 F.

Improper dimensions

This condition is related to improper finishing—either in formulation or in the operation itself. In general, if the hand obtained is too harsh, sweater sizes may be smaller than desired. If the hand is excessively soft, sweater sizes are apt to run larger.

Difficult separation of bodies

This defect need only be discussed briefly, since its causes are well known. If dyeing and finishing procedures have not been properly carried out; that is, if there has been excessive boiling, or if excessive amounts of chemical agents have been used, in dyeing, some degradation of the nylon separator thread can occur. In other words, the nylon thread cannot be easily removed because of its weakened condition, which causes it to break.

If the nylon thread has been excessively degraded, the labor cost of removing it from the sweater strips can reduce the profit margins substantially. Obviously, every precaution should be taken to prevent any degradation of the nylon in dyeing and finishing.

Spots and stains

Under this heading a number of causes can be included. Generally, however, spots and stains are caused by rather obvious conditions. For example, condensation from ceilings, or dirt in steam lines—these and similar conditions can spot the material.

Spots and stains are not a serious problem if good housekeeping practices are followed, particularly with respect to machinery and auxiliary facilities.

As mentioned before, basic colors have a tendency to "fly" when in storage. The fine particles of these dyes settle on wet fabrics and cause permanent dyespots which can only be removed by stripping and redyeing.

Yellowing

This condition applies mostly to Orlon whites, which acquire a yellowish cast if over-dried—if the material is subjected to temperatures above 220 F for any appreciable length of time. Overdrying can also cause a change in shade of the brighter shades.

As discussed elsewhere, drying is an important operation and for this reason a regular maintenance schedule is followed at Color-Knit Dyeing, including periodic checks of temperature controls and instrumentation.

As a broad conclusion about the causes and remedies of defects, it might be said that technical know-how most often points to the causes, while a practical know-how points to the remedies. When these two kinds of experience are present among key plant personnel, quality production is the inevitable result.

Speaking of Elasticity

Hosiery Buyer: "I want more elasticity for fullest, comfortable fit."

Hosiery Manufacturer: "I want full elasticity with or without use of pre-set yarns."

You'll both be happy with stockings dyed and finished on the *Turbo Dye Boarder.* The Turbo Dye Boarder provides the elasticity hosiery buyers insist on . . . and gives hosiery manufacturers the desired elasticity in seamless stockings with or without use of pre-set yarns in welts, heels, and toes. Stockings can be knit throughout of raw pirn yarn.

Pressure dyeing in the Turbo Dye Boarder accomplishes deep penetration of dyeing and finishing materials into the fiber, bringing about rich color values, more life and elasticity, better light and wash fastness, better snag resistance, and longer wear. Production capacity is 140 dozen pairs per shift with one operator. Bulletin on request.

TURBO . . . a family of engineered machines

TURBO MACHINE COMPANY, LANSDALE, PA.

Licensed Builder for Spain: Argelich, Termes Y C. A. Tarrasa, Spain

This mill likes 400 NEEDLE TWIN-FEED MACHINES

Staff prepared Exclusive

STANLY Knitting Mills, Oakboro, N. C., is currently completing installation of 60 new and additional 400-needle ladies' hosiery knitting machines. This 13-year-old knitting mill has kept abreast of the times in the knitting industry by a continuous examination of machinery, facilities, methods, and management practices to remain effectively competitive and to provide customers with the latest in hosiery construction, quality, and style.

This mill produces 400-needle ladies' seamless hosiery on 62 Fidelity single-feed machines and 14 Fidelity two-feed machines. These hose are looped, inspected, and mended. Also a number of Lonati two-feed machines are operating, and a total of 60 are to be in operation by April 1. The mill operates three shifts and employs 100-130.

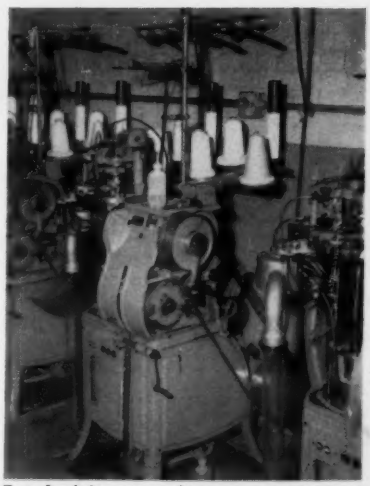
The single-feed machines are only four years old, but as soon as two-feed machines were available Stanly's John Rogers started installing these. On single-feed machines 20 doz/week production is the standard here. Two-feed machines produce 30 doz/week, a 50% increase in production with attendant savings. Lack of two feeds in heel and toe, plus start, stop, and change to new stocking slows over-all average knitting speed; otherwise production would be doubled as result of two feeds.

Hosiery styles made at Stanly on these machines include 15-denier nylon micromesh, flat-knit construction; 15-denier, two-feed stretch; and 30-denier service weight.

Seamless machines operate at speeds of 200-205 rpm, and all are equipped with 3¾" cylinders.

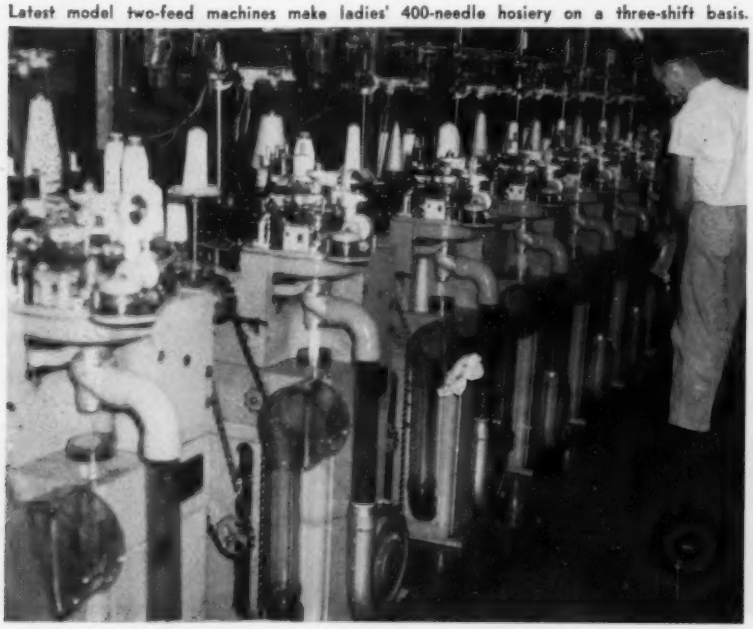
Extra supply of welt yarn and leg yarn eliminates necessity for replenishing yarn supply any more frequently than on single-

Continued on page 176

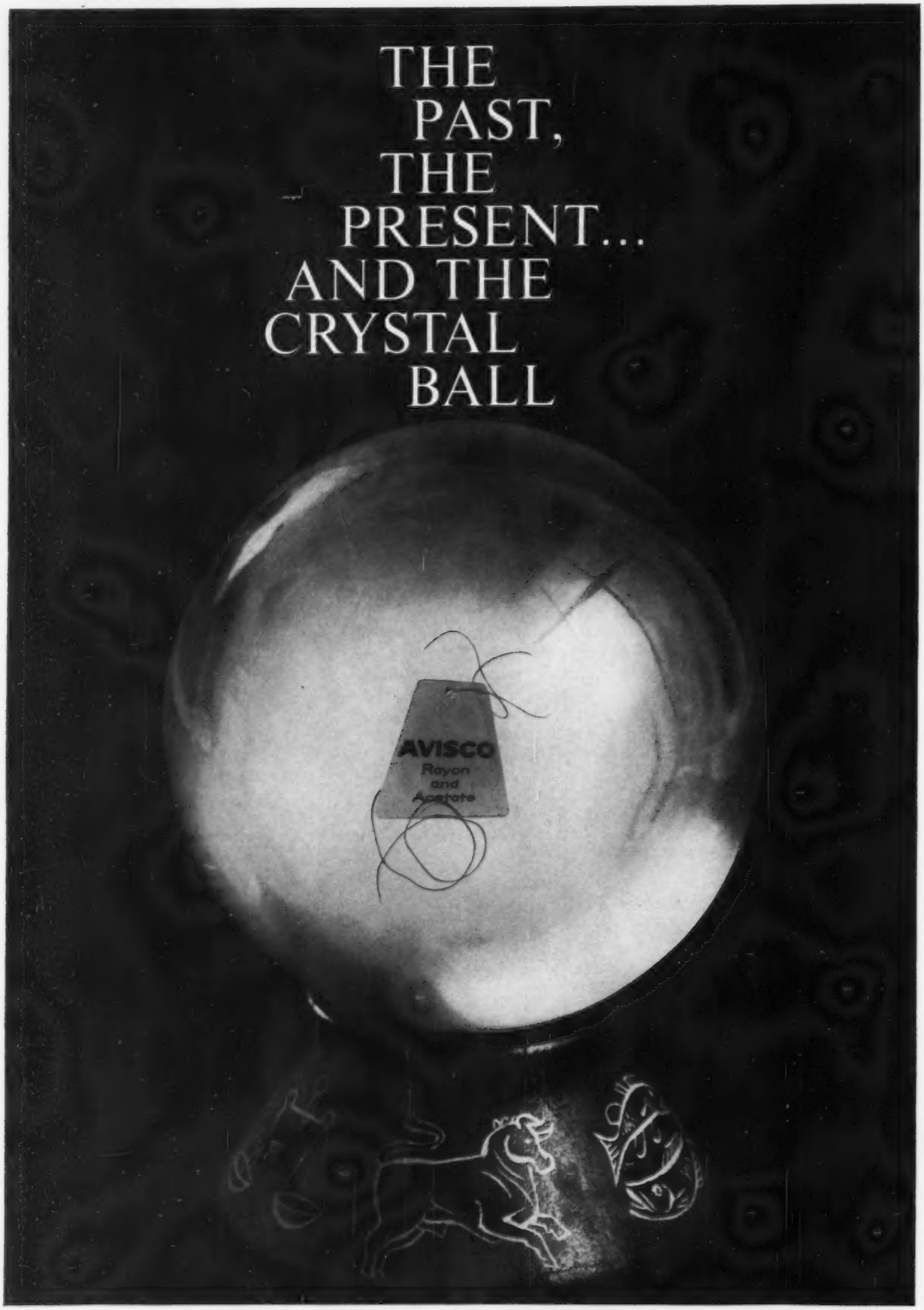


Twin-feed Lonati machines run at 200 rpm.

Latest model two-feed machines make ladies' 400-needle hosiery on a three-shift basis.



Stockings are checked right after knitting.


THE
PAST,
THE
PRESENT...
AND THE
CRYSTAL
BALL
AVISCO
Rayon
and
Acetate

Fifty years ago, American Viscose Corporation became the first commercially successful rayon producer in the United States. While the yarn was brittle and weak by today's standards, and only 362,544 pounds of it were made the first year, the venture was a success from the start. We'd like to pause for a few moments at this—the beginning of our 50th Anniversary year—to name a few highlights in our progress which may be of special concern to you. The growth of Avisco rayon has outrun all expectations. There is now 8 times as much rayon used in blends as any other man-made fiber. And of this amount, Avisco rayon's share is well over 1000 times what we produced in our first year. Much of rayon's success can be credited to extensive research pin-pointed to engineer rayon and acetate fibers to fit specific end uses. **AVISCO ACETATE** was first used in apparel . . . crepe dresses, lingerie, linings. More recently, it has found a place in the home furnishings field especially for curtains and draperies. In 1959, American Viscose developed a new acetate fiber especially for draperies. Fiber 25, as it is known, gives additional bulk, a firmer, crisper hand, an iridescent luster and makes possible unusual textures. **AVICRON®** rayon, a latent crimped rayon filament yarn, has the unusual property, when relaxed, of drawing into a tighter curl with each washing. This phenomenon opens up a whole new world of texture possibilities. Avicron is now used principally for tufted bedspreads and accent rugs. **COTRON**[1] fabrics are made of cotton and Avisco rayon. The Avisco rayon in the blend adds to the cotton a luxury of hand and drape, and a clarity and brightness of color. **AVRON*** high strength rayon was announced only a few months ago, but is already being used extensively in apparel and home furnishings. 100% Avron or Avron in blends has a luxury hand and such strength as to make possible fine-count fabrics which will accept resin finishes. Avron is a major breakthrough in fibers, has important advantages, and is highly promotable. **SUPER L*** carpet rayon, the new Avisco smooth carpet fiber, is distinguished for its long wear and soil resistance. It can be blended with wool, nylon or acrylics. **COLORSPUN*** solution dyed fibers are popular for apparel, home furnishings, automotive and industrial products. American Viscose produces a complete line of Colorspun rayon filament yarns and staple fiber and Colorspun acetate filament yarns. **THE AVISCO INTEGRITY TAG** is awarded to fabrics made with Avisco rayon and acetate fibers, which, by virture of their construction, fiber content, and performance, meet the quality control standards of the Avisco Integrity Program. It would be interesting to know what is ahead. What we can tell you, without benefit of crystal ball, is that our Research & Development people are working on many new fibers, as yet unnamed, which will be announced during this anniversary year.

AVISCO

AVISCO®

Rayon • Acetate • Cellophane

[1] TM AVC for fabrics made of cotton and Avisco rayon
*Trademark of American Viscose Corporation
AMERICAN VISCOSE CORPORATION, 350 Fifth Avenue, New York 1, New York

Modern looping equipment is used on seamless production. Note mill-built hanger cart at the left—a time-saver in handling stockings.

Inspecting and pairing of seamless hosiery are done on a nonglare white surface—chosen because of the preference of the operatives.

feed machines.

The two-feed machines are more versatile, in that some types of stretch stockings can be made on these which cannot be made on single-feed machines. (An exception is that Agilon hosiery can be made on single-feed machines.) Reference here is to multi-thread stretch yarn using one strand of Z-twist and one strand of S-twist.

THIS MILL also produces full-fashioned hosiery in 51-gauge, non-run and plain fabrics on three Reading 30 section automatic machines, and eight Kalio 60-gauge, 32-section machines. 15-denier nylon yarn and twin-thread yarn in 14/2 and 17/2 are used. Full-fashioned machines operate at 84 cpm on regular work and 48 cpm on non-run.

A line of tights is made on the 51-gauge machines when they are not in production on regular hosiery. Full-fashioned production is on a five-day week. The full-fashioned machines are all late model with automatic welt turners.

QUALITY is the watchword throughout the plant. Efficiency is noted as an unfailing necessity, and the machines are kept in first-class condition. Reneedling and reconditioning needle heads and other parts are not left to chance. Out of eleven machines, seven have been completely reconditioned in the last year and a half.

One fixer on each shift keeps constant watch on condition and operation. Needle wear and breakage are carefully watched. Normally, 3-4% seconds are made in full-fashioned production (grey goods only). Loopless toe construction is standard.

New dyeing and finishing facilities are to be housed in an 8,000-sq-ft building already completed for the expansion. The dyeing and boarding equipment is to take care of initial production of 6,000 doz/week.

Knitter's survey shows renewed interest in full-fashioned

Staff report
Exclusive

■ FULL-FASHIONED knitting operations have returned to a full-time basis in many mills, and recent orders have shown an increase. The situation is somewhat heartening to many manufacturers who make both seamless and full-fashioned hosiery. Seamless operations are on an overtime basis in some instances.

Large chain stores are promoting full-fashioned stockings with emphasis on better style and better fit than seamless hosiery. Also evident is the feeling that prices have hit rock bottom on full-fashioned hosiery, and the only way to go is up with the economy.

Nylon yarn prices which became effective early this year have little effect on the cost of hose, amounting to only about one cent per pair, a cost more than offset by other factors.

One hosiery executive, who manufactures both seamless and full-fashioned goods, made a private survey while in New York City recently. He stood at a subway exit at rush hour and counted women according to the type of hosiery they wore.

The executive told TI that he found 54 per cent of the women were wearing full-fashioned hosiery. 64% of the Negroes counted were wearing seamless stockings, he said. The count required 75 minutes on each of two mornings.

Studying the situation further, this same executive found that the business of one hosiery buyer who bought a million dollars worth of hosiery a year was divided on the basis of 76 per cent full-fashioned and 24 per cent seamless, a fact reviewed to the apparent amazement of the owner of the business.

This well known manufacturer contended that the full-fashioned hosiery business is not getting proper credit in publicity and apparent interest from buyers who, in some instances, do not realize where the volume lies.

These stockings were made according to the detailed construction specifications shown in this article and were processed to rigid quality standards. Such stockings are consistently pleasing in appearance and always satisfactory in fitting the average woman.

F-F... to sell, it must fit....

Poor fit is a major reason that women resist buying full-fashioned hosiery

Poor quality in full-fashioned stockings is not always as obvious as it is in this photo, but a variation in the volumetric foot sizes can result in the heels of supposedly identical stockings barely showing above the shoe tops of the same dissatisfied customer.

by Joseph C. Cobert
Joseph C. Cobert Associates

Exclusive

FOR MANY years the full-fashioned stocking was regarded as the better fitting of the two types of ladies' hosiery. Actually there was always room for improvement, and today poor fit and careless workmanship are among the reasons that women resist buying this once highly esteemed stocking.

The problem

The basic reason for the poor fit of some of the cheap full-fashioned stockings currently made is that they are knitted with fewer courses than were formerly used. In extreme instances as many as 250 courses have been taken out of the construction, and to compensate for the loss in course length, the stitches had to be made much larger, affecting width as well as length. Therefore, unless the construction is also altered proportionately, the stocking will be *wider* in the grey.

Before the decline in popularity of full-fashioned hosiery, many stockings were knitted wider than necessary, especially at the knee and ankle areas. Moreover, because of the wide leg, the heel pocket had to be made shallow to avoid excessive width across the instep. Nevertheless, in spite of being knitted baggy, the shape forced into them by preboarding gave the finished stocking fairly good fitting qualities.

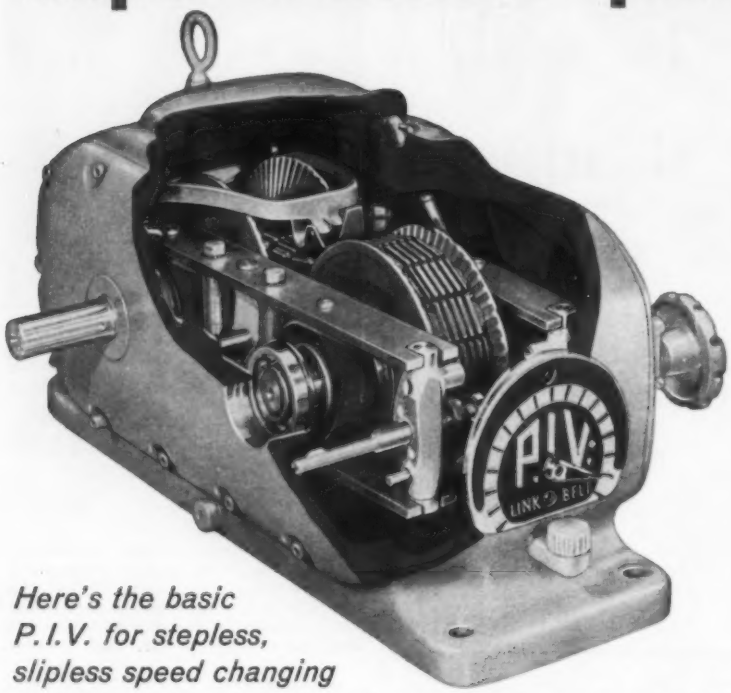
But wide, shapeless stockings are difficult to board properly, particularly at the critical heel pocket and instep areas. And when stockings are knitted too loose as well as too wide, preboarding will not always shrink them to a clinging fit. This is especially true where stitch size irregularity causes some stockings to be much looser and wider than others made on the same machine.

Furthermore, different machines, supposedly making the same size and length stockings but actually with a discrepancy in courses in addition to a large variation in stitch size, are often revealed by initial Volumet grey measurement to be producing extremely irregular stockings. For example, it is not unusual to find that foot size will vary from 8½ to 10½ in the combined production of stockings intended to be knitted as size 9½. In such goods, over-all length will vary from 29 to 34 inches and more, depending upon the way the hosiery is boarded.

To cope with this problem, some manufacturers have tried to sort the irregular lengths in finished production into three cate-

LINK-BELT P.I.V. is available in all these ways for

super-sensitive quality control



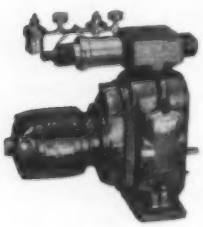
Here's the basic P.I.V. for stepless, slipless speed changing

Today a growing number of production machines and operations demand extremely accurate transmission of power with variable speed control. For these requirements, Link-Belt P.I.V. is available in the many ways shown below—with automatic controls and integral differential to satisfy an infinite number of variable speed applications.

Variable from top speed to minimum speed with no steps, no stops in between, Link-Belt P.I.V. is industry's only chain-driven variable speed drive. Teeth—not tension—permit positive, high-efficiency power transmission.

For information on the full P.I.V. line, call your nearest Link-Belt office or authorized stock-carrying distributor. Or write for Book 2274 on basic P.I.V., Book 2349 covering automatic controls and Book 2774 explaining P.I.V. with integral differential.

Link-Belt P.I.V. is available in 8 sizes and 16 standard types, in capacities from ½ to 25 hp—for horizontal or vertical mounting. Compact design simplifies installation as a separate unit or a built-in part of a machine. P.I.V. is totally enclosed, automatically lubricated.



PNEUMATIC (shown) — The P.I.V. pneumatic ratio changer is used as a final control element providing fully automatic control of speed. Operates from standard pneumatic controller in systems regulating pressure, temperature, rate of flow, etc.

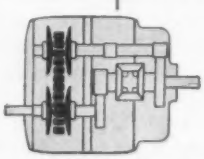
MECHANICAL — Predetermined timing, cyclic, or characterized regulation can be accomplished by P.I.V. with mechanical controls.

HYDRAULIC (shown) — Consists of a low-pressure hydraulic Servo system with a precision valve positioner. Intended to give automatic speed control by direct operation with any form of linkage. A minimum operating force is required.

ELECTRONIC — Flexible form of speed control to provide either "on-off" or modulated speed response of P.I.V. drive. Electric control motors are available to match a wide variety of electrical control systems.

P.I.V. with integral differential gearing

CONDENSED SPEED RANGE TYPE of integral differential results in a ratio range less than a standard P.I.V. with the advantage of increased horsepower capacity, high ratio stability and accuracy. These drives are applicable wherever small ratio range is required but with extreme accuracy of ratio control.



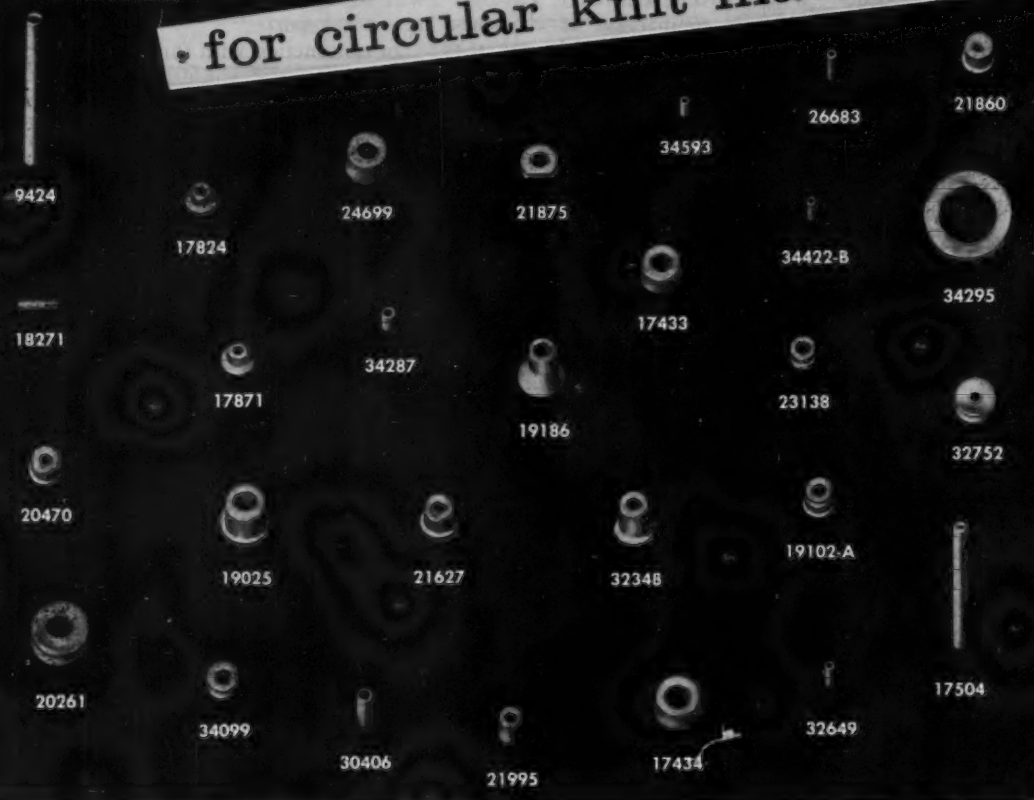
EXTENDED SPEED RANGE TYPE of integral differential results in infinite ratio range and output speeds down to zero with a constant input speed. Clockwise and counterclockwise rotation through zero is also obtainable. These drives may be used whenever a ratio range greater than 6 to 1 is required.

LINK-BELT P.I.V. VARIABLE SPEED DRIVES

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World. 19,102

ALSIMAG 192 *Guides*

• for circular knit machines



You get all these advantages with ALSIMAG guides

LONG LIFE. This very hard, smooth material is homogeneous, thus has no rough underbody.

FEWER REPLACEMENTS. Extra long life of AlSiMag guides means less down time, less labor costs.

BETTER QUALITY. Your product is better because these guides help attain uniform tensions. You also eliminate yarn damages which sometimes resulted from undetected guide failures in old type guides that had a smooth surface and a rough underbody.

UNIFORMITY. AlSiMag guides are uniform dimensionally and physically, from guide to guide and from lot to lot. This speeds installation, helps you to attain UNIFORMLY high quality in your product.

LIGHTER TENSIONS. AlSiMag guides are available in controlled finishes.

STATIC CONTROL. Where static is a problem, AlSiMag guides can be supplied in AlSiMag 193 which is identical to 192 except that 193 is electrically conductive.

PROMPT DELIVERY. Ask us about test samples.

Booth 418 at American Textile Machinery Exhibition - Atlantic City - May 23-27

A Subsidiary of Minnesota Mining and Manufacturing Company

AMERICAN LAVA CORPORATION

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NOTE: These standard AlSiMag Rings are available in various thicknesses; weights in proportion.

gories including short, medium, and long proportions. However, since foot size and stocking width are also affected, that method has not proved to be satisfactory, especially from the customer's point of view. Nor is sorting practical or economical from the manufacturing standpoint.

When knitting an uncontrolled production, the manufacturer never knows what quantities of each length are being made. If he attempts to sort out foot size as well as leg length, it is impossible to predict what size assortment the finished production will yield. Even more important from a cost angle, haphazard knitting always results in a high percentage of odds, seconds, thirds, and waste, particularly in the smaller and larger sizes. For this reason alone, it is far more economical to produce a uniformly controlled production, whether the stockings are well coursed or not.

The solution

The first step in manufacturing a satisfactory stocking is to set the machines up to produce identical constructions in courses, narrowings, and widenings, using a completely detailed knitting construction chart of the type illustrated. Note that this chart plainly reveals the exact number of courses used to make every part of the stocking as well as the accumulated course count and the needles employed in knitting the entire stocking. It also shows the total number of courses to apply to the knee and sole areas in every size and length proportion, as well as the correct course difference between each foot size and leg length.

The courses specified in the breakdown of the narrowing and widening parts are mathematically proved to be correct, and the details of construction are recorded in a way that makes it easy for the fixer to avoid errors in building the chain.

The detailed construction chart serves an equally important function for an alert quality control supervisor. When every style is recorded in this way the construction of each individual part of the stocking can be compared easily between styles in the light of end results. This analysis usually leads to revisions which are essential in the correlation of knitted shape with boarding efficiency. Furthermore, a comparison of construction details is necessary for the purpose of achieving as much standardization as possible to simplify the task of style changing.

While our method of recording stocking construction aids the fixer in building the original chain correctly, we recommend the development of supplementary instructions, based on the type of knitting equipment involved, for posting at each machine. Such charts help the supervisors to avoid making errors in size changing. When total courses are posted at the machine, the knitter can be instructed to check the total course count upon completing the first set made after each size or length change. This is a simple but very effective way to catch and correct errors in course construction before many stockings are made.

The second step involves testing the grey stockings to maintain stitch uniformity in every knitting section. Since the common method of pulling grey stockings on a sizing form is subject to human variables, and other testing devices do not provide an accurate means for testing the complete stocking, we have developed the Volumet to supply mills with a reliable instrument of measurement along with the system of control.

With this device, foot size, boot length, and welt dimensions are accurately measured in a single, rapid operation. Its chief advantages stem from the fact that it measures stocking width and length volumetrically, and the testing standards developed through its use can be used by any number of people, year in and year out.

As a result of the method of developing course construction and testing standards in coordination with finished length standards, knitting machines can be changed from any size or length to any other without requiring a stitch adjustment. Therefore, if an error in courses is made in changing sizes, and it is not discovered because the knitter neglected to check total courses, the mistake will be revealed by the Volumet grey test report.

In conjunction with this feature, the technique of minutely adjusting stitch regulators to keep stocking parts knitting within a definite but reasonable tolerance, rather than at an optimum, makes it possible to maintain foot size within ± ¼ inch tolerance, and leg length within ± ½ inch of the optimum standard despite variable yarn tension.

Under this control, some full-fashioned machines have been run for as long as five weeks without requiring any stitch adjustment. Since a Volumet test of 30 stockings can be made in 15 minutes or less, and knitting machines only require two Volumet tests a week to maintain the good results, the Volumet Control System is economical to operate.

The third step in maintaining uniform lengths in finished hosiery production concerns a controlled boarding practice. Some years ago this was a highly controversial subject. Today, a decade after a number of manufacturers have consistently practiced the system with excellent results, the technique of boarding to a standard line is recognized as being both practical and desirable. However, while many mills have succeeded in boarding heels to a standard length, sometimes despite knitted irregularity, very few have succeeded in continually boarding over-all length of general production to standard length lines.

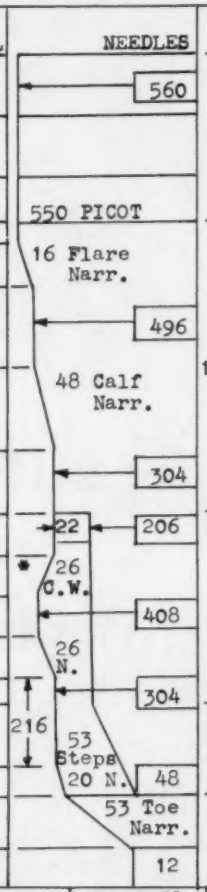
Most of the reasons for this stalemate have already been explained. But a key point in achieving permanent control involves the method of boarding tests, as well as the technique of fashioning and controlling the grey stockings so they can easily be boarded to heel and over-all length standards.

In most mills, test stockings are pulled down on the boarding forms by the so-called "normal

CONSTRUCTION CHART

60 Gauge/15 Denier

POINTS USED	PART	COUNTER TOTAL	PART TOTAL
	PICOT	226	226
	WELT TURN	456	230
	OVERLAP	552	
	START BOOT	556	100
27	FIRST NARR.	602	46
	LAST NARR.	752	150
	(Medium (Size 9½) FIRST NARR.	1212	460
	LAST NARR.	1494	282
	START HEEL	1624	130
3	FIRST WIDEN.	1674	50
	LAST WIDEN.	1824	150
19	FIRST NARR.	1874	50
	LAST NARR.	1952	78
	FIRST STEP	2055	103
56	PRE-TOE NARR.	2168	113
	START TOE	2210	42
	LAST NARR.	2298	88
3	LAST COURSE	2322	24



FLARE NARR. DETAILS	SUB TOT.	PART TOT.
15 Flare Narr. X 10 cs.	-	150
1 Last F.N. X 460 "	-	460
CALF NARR. DETAILS		
47 Calf Narr. X 6 cs.	-	282
1 Last C. N. X 130 "	-	130
HEEL WIDENING DETAILS		
To first Widen. 50 cs.	-	50
3 Carr. Widen. X 10 "	30	
2 " " X 8 "	16	
6 " " X 6 "	36	
8 " " X 4 "	32	
6 " " X 6 "	36	=150
1 Last C.W. X 50 "	-	50
SOLE & PRE-TOE NARR.		
2 Sole Narr. X 4 cs.	8	
15 " " X 2 "	30	
4 " " X 4 "	16	
4 " " X 6 "	24	= 78
1 Last S.N. X 216 "	-	216
19 Pre-Toe N. X 2 "	38	
1 Last P.T.N. X 4 "	4	= 42
TOE CONSTRUCTION DETAILS		
To first Narr. 4 cs.	4	
7 Toe Narr. X 3 "	21	
18 " " X 2 "	36	
27 " " X 1 "	27	= 88
1 Last T.N. X 24 "	-	24
The 20 Pre-Toe Narr. are regular Narr. All 53 Toe N. are pull-back Narr.		
HEEL & CRADLE DETAILS		
From Heel to Cradle 431	-	431
3 Steps X 8 cs.	24	
4 " X 6 "	24	
6 " X 4 "	24	
39 " X 2 "	78	
1 Last Step X 5 "	5	=155

KNEE CS. DIF.	KNEE CS. TOT.	TOTAL COURSES PER LENGTH 8½	9	9½	10	10½	11	FINISHED LENGTH Heel 5-1/2
60	280	2094	2118	--	--	--	--	S-28-1/2
60	340	--	--	2202	2226	--	--	S-29-1/2
60	400	2214	2238	--	--	--	--	M-30-1/2
60	460	--	--	2322	2346	--	--	M-31-1/2
48	520	--	--	--	--	2430	2454	M-32-1/2
60	568	--	--	2430	2454	--	--	L-33-1/2
	628	--	--	--	--	2538	2562	L-34-1/2
Sole Cs. Per Size		55	79	103	127	151	175	Welt 3-3/4
Courses Between		24		24	24	24	24	After Welt 1-7/8

FINISHED STRETCH	
AREA	
WELT	12-3/4
KNEE	12-1/4
ANKLE	8
INSTEP	9-1/4
FOOT	7-1/2

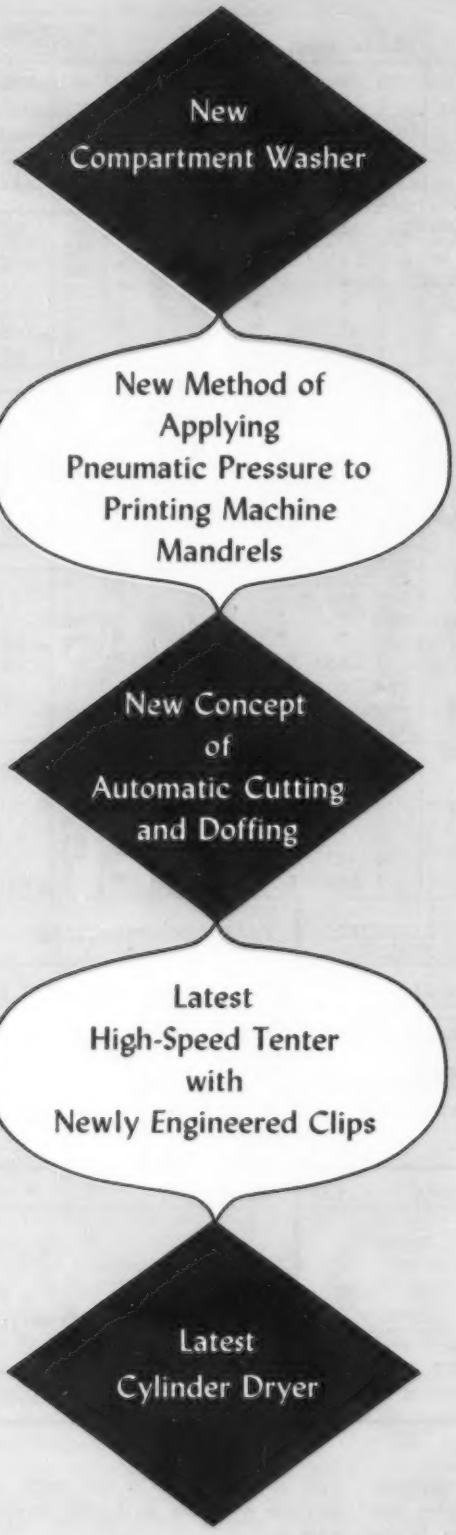
YARN SPECIFICATIONS			
PART	DEN.	FIL.	T.P.I.
WELT	40	13	0
AFTER WELT	"	"	"
BOOT	15	1	0
HEEL SOLE	30	10	7Z
TOE	"	"	"

Designed by
Joseph C. Cobert

* In heel widening, a selvage locking dip is made two courses after every carrier widened dip - 52 dips in all. The splicing carriers set in 2 needles from main selvage.

pull" method, similar to the way grey stockings are tested on a sizing form. In many instances the boarding of test stockings is not observed by the person responsible for their fitting qualities and ultimate control. Therefore, if the stockings are ill fitting and difficult to board, it is not seen by anyone with the authority to correct it.

While boarding test stockings at



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1960

This is your invitation to see what's new in textile finishing machinery at the American Textile Machinery Exhibition in Atlantic City, May 23 to 27.

At the Butterworth exhibit, just inside the main entrance, you will see new machinery, new finishing techniques — the result of Butterworth's 140 years of machine-building experience.

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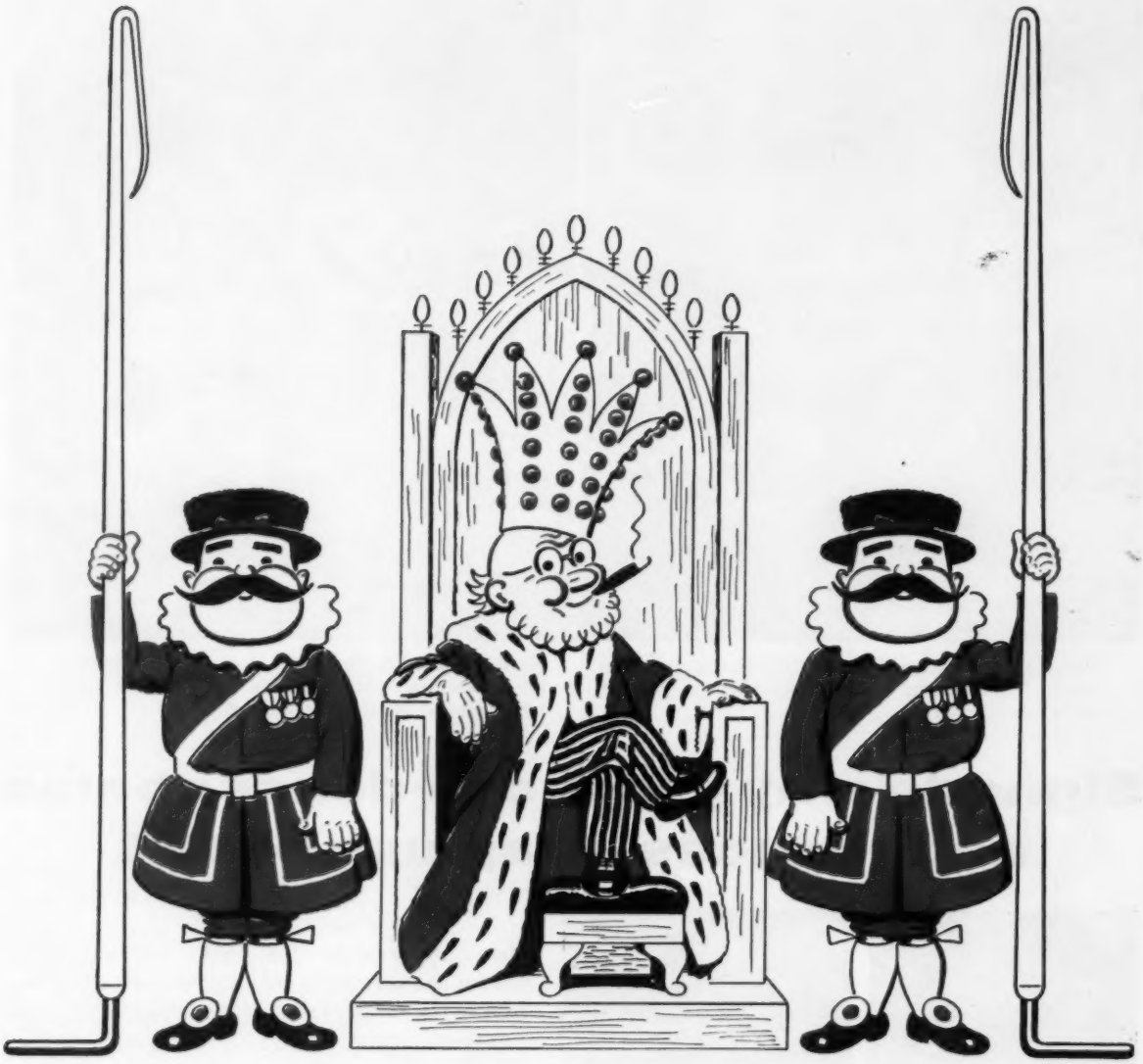
BETHAYRES, PA.



Uniform . . . in every way

Textile Spring-Beard Needles help keep your knitting costs down. Made to one high standard — needle after needle — stems, sides, backs and beards are always completely uniform. Their strength, straightness and resiliency help your machines produce consistently high quality fabrics. You'll get dependable knitting results with Textile Spring-Beard Needles, Flat Stock and Leaded Assemblies.

Wire Products Division
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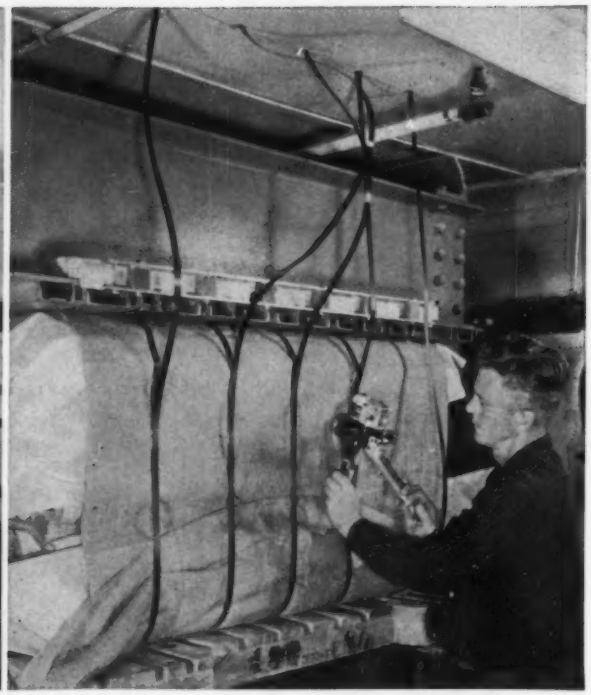
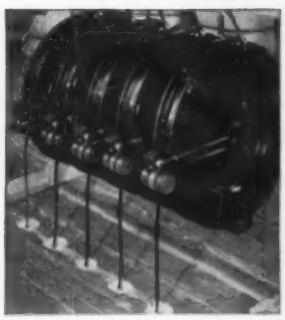
The "Reading" CK-A Circular Knitting Machine • The "Reading" Tricot Machine • The "Reading" Full-Fashioned Knitting Machine
The "Reading" Full-Fashioned Outerwear Machine • The "Reading" Braiding Machine • Textile Spring-Beard Needles • Arrow Latch Needles

Strapping is fed from dispensers in room above press (inset). A magnetized bar holds the straps in position while bale is readied.



Signode's exclusive Model SFC tool tensions the strapping, feeds seals from magazine, and crimps them. Straps are severed at the seal. No waste strap.

Signode way produces denser bales and reduces strap use by 17%



Strapping dispensers can be in a variety of locations. Above, they are shown set up in an overhead storage area; at right they are shown installed on a framework over the press. They may also be installed on the floor beneath the press or behind the operator.

Here's an example of a simple and inexpensive answer to a packaging problem. Waste—which was part of the former cut-to-length strapping method—was eliminated, with a 17% saving in the amount of strapping used. Bales are better looking. Their increased density saves about 7% of valuable space in storage and shipment. The entire strapping operation is simplified, goes easier and faster.

Why not let a Signode man take a new look at your packaging and shipping operation. He has an eye for savings, specialized knowledge of textile applications, and a complete line of strapping tools and machines at his disposal. Call him today, or write:

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normal pull appears to be a practical way to conduct tests, the variable end results created by the human factor are frequently misleading. Boarding to a line is the only way to get all boarders to pull stockings with equal force. Even the same boarder will pull stockings with more or less force at different times because of fatigue and because of a difference in boarding form cleanliness and in "feel" caused by the degree of dryness or dampness in grey or dyed stockings. There are many more reasons why the normal pull method of boarding does not provide a true picture of finished flat length but the following two points will condense our reasoning:

(1) Even if over-all length irregularity is revealed by the normal pull boarding method, it serves no practical purpose because each individual part of the stocking is measured much more accurately on the Volumet. Whenever necessary, the machines are reliably adjusted to keep grey stockings within fixed testing standards.

(2) The normal pull boarding practice conflicts with the ultimate aim of the Volumet Control System, which is to prove that stockings so controlled will consistently finish within the same length tolerance when boarded to the proper line. After the biweekly records of Volumet tests reveal that general production is consistently being knitted within the same close grey length tolerance as observed in test lots, general production will be just as easy to board to length standards.

While it is a fact that line boarding helps to make finished lengths more uniform than they can be controlled in knitting, it is also true that uncontrolled boarding greatly exaggerates knitted irregularity. To answer the objection raised by some mill men that line boarding increases the danger of two stockings of different wearing length being paired together, we can earnestly say there is very little chance of this happening with grey goods under volumetric control and where the pairing of flat length is held to reasonably close tolerances.

Fortunately the boarding of slightly loose and tight stockings to the same line does not make them finish the same in flat length. But it does reduce grey length difference by about 50% and permits all boarders to produce lengths that fall within the same close tolerance established for each length proportion.

Improved washer for Komet verge collar

by K. O. Metz
Exclusive

ONE OF THE minor improvements available for S & W Komet and Links & Links machines is, believe it or not, a washer.

Now normally a washer is not considered to be very important, but this particular washer was made of special material to do a specific job in a much needed place.

Note in the accompanying drawing the washer (519434), which goes between the verge collar washer 302416 and the verge operating collar 302413. This is the washer referred to above. Use of it eliminates the need of oiling at this point, as the washer is made of oil-impregnated bronze material.

Komet fixers know that the verge operating collar and washer must be oiled at least once each week and sometimes more. Lack of oil on these parts causes rust, squeaking and worn collars, and verge settings getting out of adjustment when the wear is sufficient.

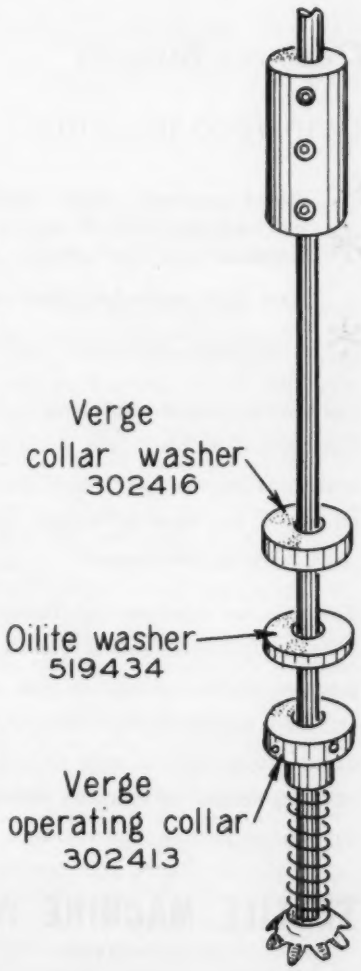
The fact that these components require oiling at regular intervals brings on another problem—oil stains. As all Komet fixers know, excessive oiling at this point causes oil to run down the verge tube and the toe takeup spindle, and resultant oil stains on goods.

So, a simple washer:

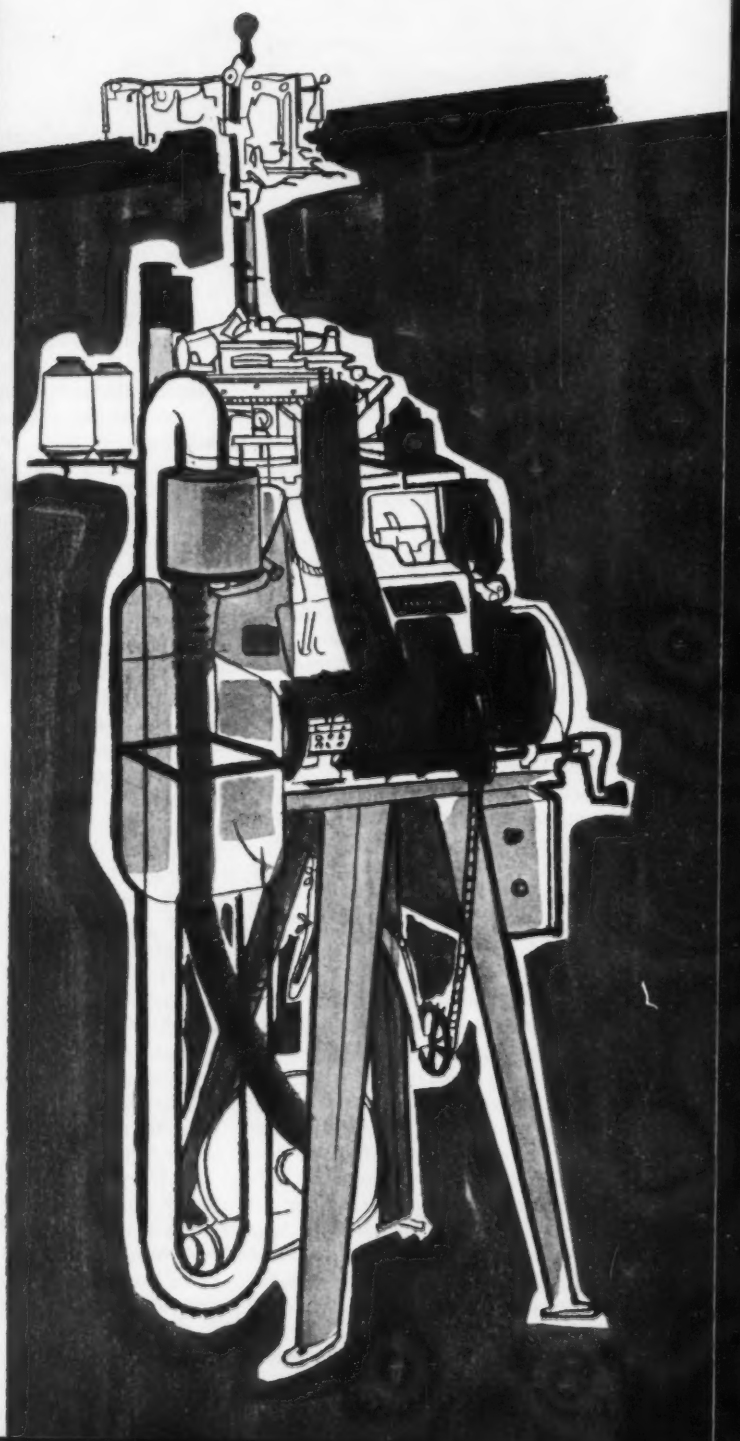
1. Saves the time required to oil this point
2. Eliminates one source of oil stained goods
3. Prevents wear on upper and lower collars which, in turn, insure verge setting remaining the same and thus avoiding rib knitting from getting out of adjustment.
4. Prevents other troubles which can show up when verge setting changes due to worn collars.

The new washers can be installed in a few minutes. Be sure and check the verge setting with a feeler gauge while the quality drum is at the loop round position, and keep the same clearance after the new washer is installed as it was before.

Careful testing in the mill has proved these washers to be a good investment.



now peak production of the finest seamless nylon stockings



announcing the new "Reading-Booton" twin-feed machine

* 2-feed automatic, highly efficient end trimmer. Trims all ends to a length of from ¼ to ⅜ inch.
* New high standard of fabric quality
* Continuous, high-speed production

The new "Reading-Booton" Twin-Feed Machine opens new profit possibilities in the knitting of ladies' seamless stockings. It gives you twin-feed production, plus amazing simplicity of operation, and trouble-free performance.

New features developed by Textile Machine Works for the proven Booton Machine. This new precision machine belongs in your production planning. Backed by our world-wide service organization. You'll want to see the new "Reading-Booton" in operation before you buy any seamless machine. Call us today.

TEXTILE MACHINE WORKS

READING, PENNA.

These two stockings were made on the same knitting machine, with the same settings, and supposedly with the same yarn. Differences in size and appearance were caused by differences in the elasticity of the yarn.

Control yarn properties to reduce seconds

Knitters—If you use combed cotton yarn:
Control of yarn elasticity can reduce size variation
Control of yarn tension in winding is important to you
Large-package twisting reduces knots, adds new problems

by Ashley B. Roberts

Exclusive

THE INCREASING public demand for quality textile products coupled with the industry's demand for lower costs have hastened change and re-evaluations of equipment and processes in all phases of our industry. The spinners' response to this demand in producing higher quality ply knitting yarns is evident in the rapid rate in which yarn manufacturers are modernizing their plants and facilities. In nearly all instances yarn quality is improved along with manufacturing costs.

Larger packages from the pickers through the twisters have their very definite advantages on quality and costs. High production knitting machines have made it necessary to "throw out" old quality standards and up-grade quality. Higher yarn strength and more even yarn, with fewer knots are essential to meet the demands of today's quality knitting yarns.

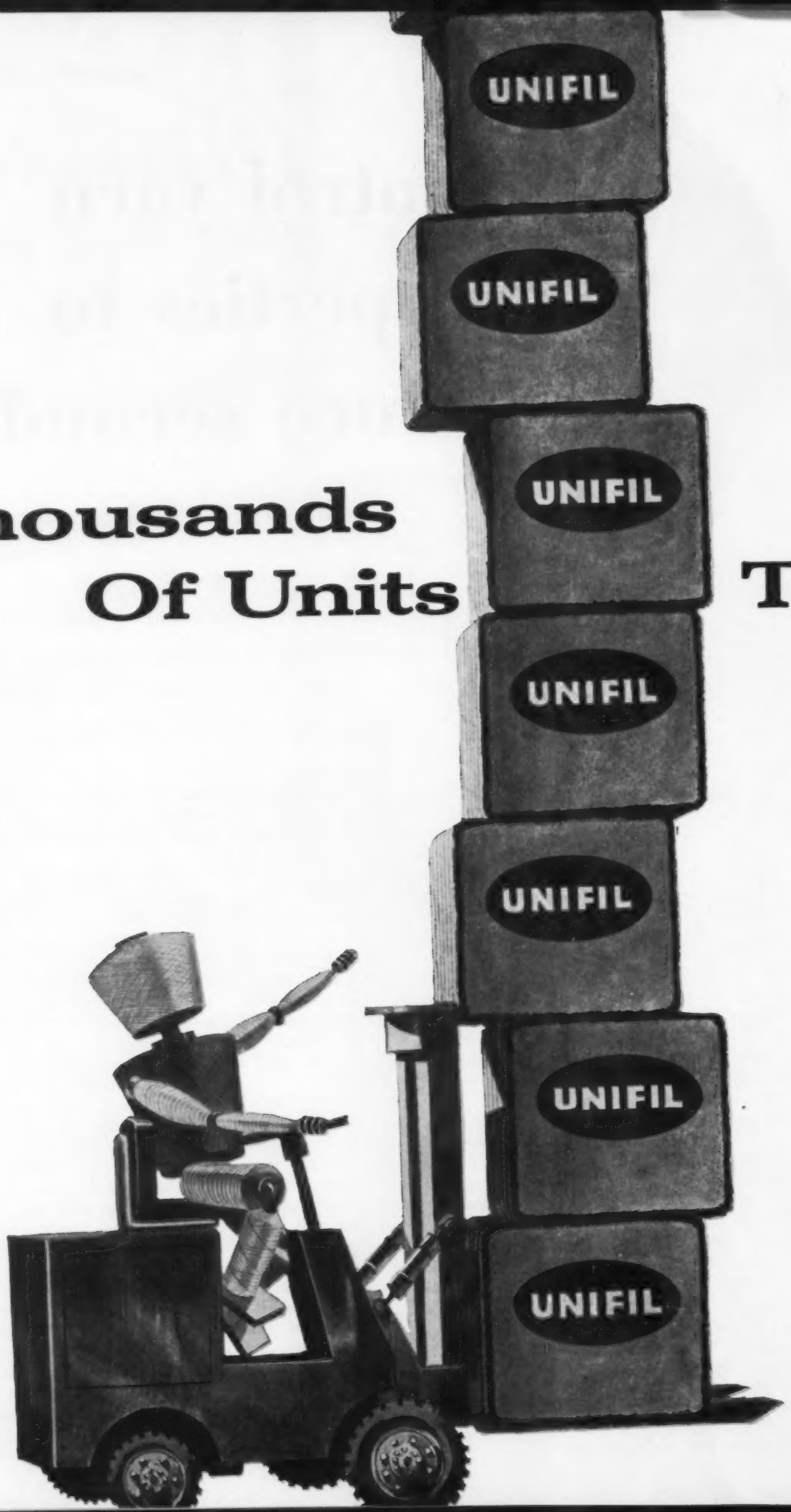
In many instances, advances in machine production and efficiencies bring new problems that must be solved. For instance, increasing twister-package size on two-ply combed knitting yarns from eight ounces to twenty-four ounces would seem to eliminate any further complaint. If your complaints had been only on excessive seconds from ply knots, the next complaint from the knitter would likely be, "What has happened to your yarn size; I can't control hose size."

An investigation would likely reveal a very noticeable variation in hose size within hose made from the same cone, on the same knitting machine. Examination of the loop formation and general appearance of the hose may make it appear as if they were made of yarns of five to ten counts difference in yarn size. However, a size check on the yarn from the unraveled hose may show that they are of identical size. A further look may show uniform knitting tensions and yarn finish. If the yarn is mercerized, the fact that the hose size trouble is caused by a variation in yarn elasticity is further concealed.

YARN ELASTICITY is a very important and controllable property in the manufacture of quality combed knitting yarns, especially in garments that require close size tolerances. Further, any variation in yarn surface that changes the coefficient of friction of the yarn changes the amount of elasticity removed from the yarn as it is formed into hose, thus changing the appearance and dimension of the hose.

Increasing twister-package size to eliminate one quality problem created a second that could be even more serious than the first. Perhaps the twenty-four-ounce twister package was the popular three and one-half inch ring size with ten-inch traverse that will yield approximately twenty-four ounces of combed two-ply yarn. Chances are the twisters were new or rebuilt with anti-friction bearings and high speed rings so that speed could be increased to

Thousands Of Units To



Leading Textile Mills...

More and more modern mills are turning to UNIFIL® Loom Winders as the proved approach to better economy and higher productivity. Most of these mills first learn about the outstanding advantages of UNIFIL Loom Winders through a Leesona "Profit Factor Analysis". This detailed analysis of filling yarn preparation methods, carried out by Leesona Engineers, shows mill management exactly how UNIFIL Loom Winders can prove these analyses correct . . . and reorders follow *fast!*

This extra performance by UNIFIL Loom Winders is what you can expect . . . they bring the entire process of filling yarn preparation to the loom. UNIFIL Loom Winders provide all the advantages of weaving-from-a-cone . . . on all counts and types of yarns, both cotton and synthetic. For example, they greatly improve the quality of fabrics woven from fine yarns . . . give fabrics with textured yarn filling a uniformity not possible before. And savings in production costs quickly pay for UNIFIL Loom Winders.

Let a "Profit Factor Analysis" show you how UNIFIL Loom Winders can improve weaving and profits in *your* mill. Ask your Leesona Sales Engineer in Boston, Philadelphia, Charlotte, Atlanta, or Los Angeles. In Canada: Montreal or Hamilton. Or write LEESONA CORPORATION, P. O. Box 1605, Providence 1, Rhode Island.

Here are just a few of many modern mills which are saving with UNIFIL Loom Winders:

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EXPOSITION COTTON MILLS
GREENWOOD MILLS
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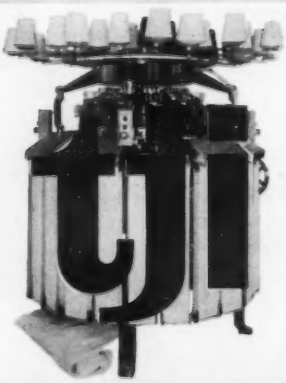
UNIFIL *is a registered trade-mark of Leesona Corporation*

The TJI-12 is truly versatile! This unique machine produces women's suit materials knit in double pique with unlimited design scope, in cuts from 5 to 14 N.P.I. Four color yarn changers at each feed provide a wide choice of colors. Fancy stitches, knit on cuffs, offer fabrics that are different. The TJI-12 is made to protect your reputation.



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for Knitgoods Dyers . . .

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reactive dyes for COTTON and RAYON

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reactive disperse dyes for NYLON

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versatile application

good wetfastness

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523-9

IT'S EASY TO KEEP POSTED

on new equipment and supplies for the knitting industry. Just read the "New Product Parade" section in this and every issue of "Textile Industries."

overcome the loss in spindles. The high traveler speed, large ring, and longer traverse completely changed the stresses applied to the yarn during twisting.

First, higher speed and increased angle of pull at the traveler increased sharply the drag on the yarn at the traveler. Secondly, the traveler pull changes constantly from the beginning to the completion of the package. Also, a short term variable is present as the ring rail traverses from the bottom of the package to the top. Consequently, a variable amount of elasticity is left in the yarn throughout the package.

How can these variations be minimized? Fortunately, cotton is a tough and forgiving fiber and has wonderful recovery properties. Specifically, the biggest single factor is to use a traveler light enough at the beginning of the build where tensions are highest to avoid extreme tensions. In some cases node or control rings act as partial compensators and tend to reduce extreme tensions. An expensive, but not impractical, approach is the use of variable speed motors allowing the spindle speed to increase as the package size increases.

Grease groove rings have some compensating effect in theory since the maximum lubrication is at the beginning of the package and gradually diminishes as the package builds. This is more obvious on medium and fine yarns that have a relatively long doff cycle.

Longer distances between the nip of the roll and the top of the bobbin help to minimize extreme tensions, and at the same time allow the twist to distribute along a longer length of yarn. This feature is also helpful where long traverses are used, ten inches or more, since it decreases the angle of deflection of the yarn away from the axis of the bobbin.

A FURTHER consideration worthy of comment is the selection of the type of build and bobbin. While spool-type bobbins will allow more ounces of yarn per bobbin, it may be difficult to maintain uniform winding tensions. There again, in order to eliminate cones and tubes of varying density with a resultant variation in yarn elasticity, extreme care should be taken at the winder.

Such items as proper selection of the twister package, type guide used, position of twister bobbin, winding speed, and condition of the surfaces that the yarn passes over, all can reflect in the size and appearance of the finished hose. In some instances, where several twister packages make up a winder package of yarn, rewinding from a full cone has been necessary to compensate for variations in winding tensions from the beginning to finish of the twister package.

A number of testing instruments are invaluable aids in analyzing yarn properties that were a few years ago obscure or simply guess work. High speed tension measuring devices with recorders are most useful in analyzing yarn tensions at all processes. By their use, tensions that may lead to yarn elasticity faults can be found and in most cases corrected without radical changes in processing equipment.

Today, modern machinery and laboratory equipment challenges our technical ingenuity, and points the way to the real solution to problems of production, quality, and competition.

Knitting Agilon *(from page 165)*

7. Extract only to the point where the fabric is quite damp. This is an extremely important step. If too dry, creasing will occur.

8. Remove fabric from net bags and tumble dry at 180 F. Cool gradually.

9. Inspect, steam, cut, sew, and press.

Dyeing

1. Pre-treatment—Use Alkanol LN, or a similar pre-treating agent. Follow suppliers' recommended procedure for textured yarns.

2. Add dyestuffs. Acid dyes are recommended because of their greater range, depth, and fastness of colors. (Agilon yarns are one of the few crimped filament nylon yarns that can be dyed with acid dyestuffs. Yarns not possessing the characteristics of Agilon will very often exhibit serious barré when dyed with acid dyes.)

3. Raise temperature over a 30-minute period to boiling. Hold for 45 minutes.

4. Cool slowly and rinse at 120 F. This procedure is used to set permanently and make the dye colorfast.

5. Add 0.25 per cent to 0.50 per cent cationic softner. With Agilon yarns, it is necessary to use only half as much softner as is normally used.

6. Extract lightly. This will vary with size and type of extractor and size of load.

7. Tumble dry 20 minutes at 180 F.

8. Cool slowly to 100 F in dryer with door shut.

Thermoset (Optional)

1. Steam at 25 pounds pressure, 265 F for 8 minutes.

This procedure will permanently set the bulking of the fabric and provide for maximum dimensional stability.

A JOB WELL DONE

Here is how Coats & Clark feel about the Cleveland Tramrail installation, as expressed in a letter from Mr. L. P. Greer, Jr., Chief Engineer, to Mr. J. C. Wilkins of Cleveland Tramrail Atlanta Company:

"There comes a time on a job when one must sit down and take stock of those who deserve praise and recognition for their efforts in making the job successful. During the course of this job, it has been extremely satisfying to have dealt with you and Cleveland Tramrail on the overhead crane handling system. I wish to extend to you my sincerest thanks for a job well done."

One of five 2-ton, 37'-4" long completely motorized Cleveland Tramrail cranes at Coats & Clark, Inc., Toccoa, Georgia. Speeds: Crane travel 150 fpm, carrier travel 75 fpm, hoist 6 and 20 fpm. Safe electrification is obtained by use of Cleveland Tramrail SAFPOWRBAR conductors.

The advanced control equipment provided for crane travel motions and hoist enable easy accurate spotting of a load and smooth careful lowering into a kier.

CLEVELAND TRAMRAIL CRANES SERVE COATS & CLARK TOCCOA MILL

Bleaching, dyeing and drying operations are fast, easy one-man jobs at the new Thread Mercerizing Plant of Coats & Clark, Inc., Toccoa, Georgia. Fully motorized, push-button-operated Cleveland Tramrail cranes eliminate the need of any heavy manual lifting and enable handling large production units and thereby bring about increased efficiency.

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BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy

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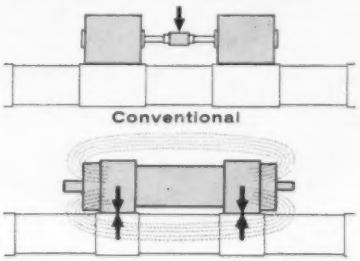
CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

MagneDraft*, using the forces of magnetic attraction to produce required roll pressures, gives the cleanest, most efficient operation of any spinning drafting element ever developed. *Completely eliminated are saddles, stirrups, levers, hooks, springs, and weights* used with conventional drafting systems. Most important — MagneDraft requires *no lubrication* (oil or grease) in the drafting zone. Maintenance costs are reduced to an absolute minimum due to the few component parts. A unique method of supporting the front top roll makes piecing-up around the end a very quick and simple operation.

MagneDraft installations in leading mills are producing yarns of superior quality with a substantial reduction in drafting gear wear and power consumption. Get all the facts from your nearest Saco-Lowell sales office.

*U.S. Pat. No. 2,686,940

WORN NECKS ON STEEL ROLLS ELIMINATED



The mutual attraction of the magnetic forces gives a "squeezing together" pressure at the nips, instead of the "pushing down" between the cots of the conventionally weighted top roll. This greatly reduces wear in the entire drafting element, eliminating worn necks on steel rolls.

See this machinery at the A.T.M.A. Exhibition, Atlantic City, May 23-27. Saco-Lowell Booth 482.

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HOW OTHERS MANAGE

Get knotless yarns with these splicing techniques

THE EDITORS:

Modern machinery and methods in the textile industry require packages of yarn and threads of ever-increasing size free from knots which can be woven, knitted or tufted at high speeds. It is obvious that long lengths of yarn without a detectable joint will enable the operative using them for any purpose to be in charge of a larger or more complex operation on a faster machine.

For example, if the tying of a knot—whether by hand or by means of a mechanical knotter—takes 10 seconds, it is easy to calculate the number of winding or doubling spindles that can be looked after. If the operative has too many in her charge some must stand idle for prolonged periods but the operative efficiency will be high. Her productivity would however be increased if the supply packages held longer lengths of yarn.

When one considers the production of tufted carpets or candlewick bedspreads, the need for long lengths of yarn on each package is even more apparent because each time a joint has to be made the whole machine may have to be stopped, and therefore the productivity of both the machine and the operative is reduced.

Neither carpet tufting machines nor candlewick machines will tolerate knots, as the needles used for producing the loops or pile will only pass single yarn thickness through the eyes.

High speed sewing machines, whether used for garment making, hosiery joining, or industrial fabric sewing, also call for long lengths of knotless yarns if high productivity and freedom from broken needles and faulty seams are to be achieved.

Knots of any type are always at least three yarn diameters in thickness and therefore some other method of jointing is necessary if long lengths of yarn capable of passing through needles of any type are to be prepared.

It is obvious that sewing threads made up of several fine yarns twisted together present a different problem to coarse single or two-ply carpet yarns.

In the latter case a knot in one of the single yarns would produce a thick place which would not be

Only a few days left!

Every kink, short-cut, time-saver, or quality improvement suggestion entered in the contest will be paid for immediately upon acceptance and the $100 award will be made as soon as all entries are judged.

The contest rules are simple:

► All contributions must be postmarked not later than midnight, April 15, 1960.

► No limit to the number of entries an individual may submit in any one contest.

It's later than you think. Almost before you can say "Kink Contest" we will have closed out the last one for this year, so hurry up and send us that kink you have been keeping in the back of your head.—The Editors

► All entries paid for upon acceptance — no waiting. Extra payment for photographs that are usable. Extra consideration is also given kinks accompanied by legible pencil sketches or drawings.

► Entries must not have been published previously and must not be submitted to any other publication.

Send your contest entry to: The Editors, TEXTILE INDUSTRIES, 806 Peachtree St., N. E., Atlanta 8, Georgia.

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FOR PURE FINISH

Victor P-40-U

SMOOTHER HAND
BRIGHTER SHADES AND WHITES

FOR BACKFILL

Victor 10-55

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ALWAYS UNIFORM • CARRIES MORE TALC

Charles C. Switzer, Vice President
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THE KEEVER STARCH COMPANY
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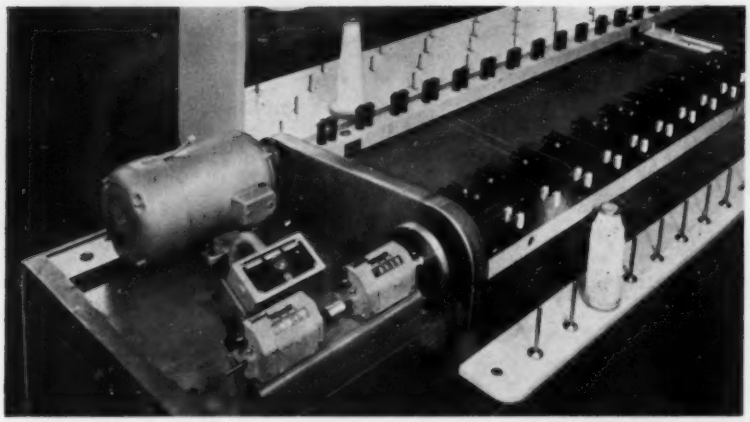
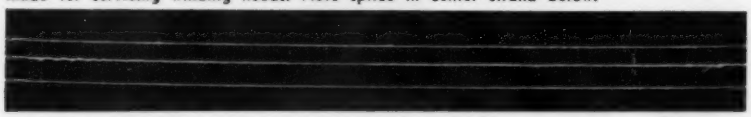


A splicing machine to which the yarns are carried for splicing. It automatically removes and reinserts twist after operator has made splices according to preset amounts. A portable, single-head unit, powered either by battery or main, moves on trolley and is made for servicing winding heads. Note splice in center strand below.



buried in the plied yarn. The method which is proving very successful for coarse yarns of all types and for single yarns uses some form of adhesive to stick together the frayed ends of the yarns. In this way a form of overlapped joint is produced which is no thicker than the rest of the yarn. In addition the strength of the joint may approach that of the unbroken yarn.

With a little practice an operative can join together yarns by means of suitable adhesives at least as quickly as by knotting.

The choice of adhesive depends upon the end use of the yarn. The most widely used, and probably the most versatile, adhesive is natural rubber latex. This gives a good joint, and as the pressure of the fingers on the latex—as the yarn is rubbed between the finger and thumb—causes coagulation, an almost instantaneous strong joint is produced. To avoid the joint adhering to adjacent yarns, it is lightly dusted with French chalk.*

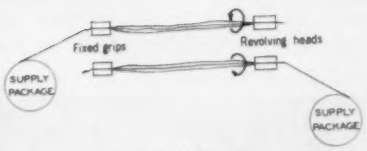
There are various types of containers or applicators for the latex. They are based on the ball-pen principle and consist of a shallow box with a circular hole in the lid. Under this hole revolves a large polished steel ball which is resting in the latex. By revolving the ball by pressing the yarn ends against the ball a thin film of latex is picked up and the joint completed by lightly twisting together the frayed ends of the yarns.

Fine, multifolded yarns used for sewing threads and other purposes where high strength is important cannot be joined by means of adhesives. This is because the available area of contact with fine yarns is relatively small, and, as they are usually tightly twisted, will not absorb the adhesive as completely as soft spun bulky yarns.

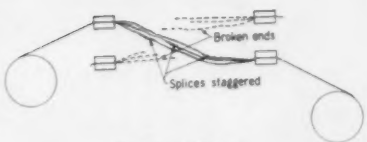
Being multifolded and tightly twisted, however, they are naturals for another method of joining —splicing. The principle involved requires removing the folding twist from the adjacent broken ends, twisting together the opposite pairs of single yarns, and then reinserting the folding twist that has been removed. The sketches illustrate this action and show how the single ends to be twisted together are staggered so that only one single joint occurs at any one place along the over-all jointed length.

The action of re-inserting the twist in the folded yarn is most effective in binding together the broken ends which have been loosely joined by rubbing between finger and thumb. A good joint made in this way is almost undetectable. The over-all diameter and smoothness is very similar to the rest of the yarn and as a result the performance of the yarn for high speed sewing, etc., is unimpaired. Tensile strength tests show that the joint has normally at least 80 per cent of the strength of the rest of the yarn.

The splicing operation is made much easier if all the folding twist is completely removed. The single yarns are then quite slack, and it is a simple operation to break a thread in each group with the ends slightly overlapping and then twist them together. It is equally important to insert the same number of turns into the jointed length as was taken out of each of the two separate lengths before jointing. These two parts of the operation are controlled by two pre-set revolution counters inter-linked with the driving motor. As the unwinding counter records the number of turns removed, the other one is subtracting the same number on its dial.



Step 1. Untwisting



Step 2. Splicing

Step 3. Retwisting

The unwinding stops at the preset figure—e.g., 200 turns if the length of yarn between the jaws is 10″ and the turns 20 per inch. The single splicing is then carried out and the control switch operated, which results in the winding counter controlling the operation. As soon as this reaches 0 the same number of turns have been put in as were taken out and the stop switch operates.

This method of producing long

*A form of talc also referred to as soapstone. Various starches, sometimes whiting (a form of chalk) are used.—The Editors

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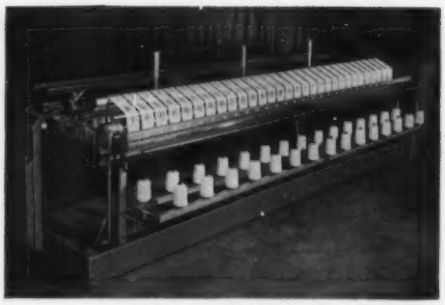
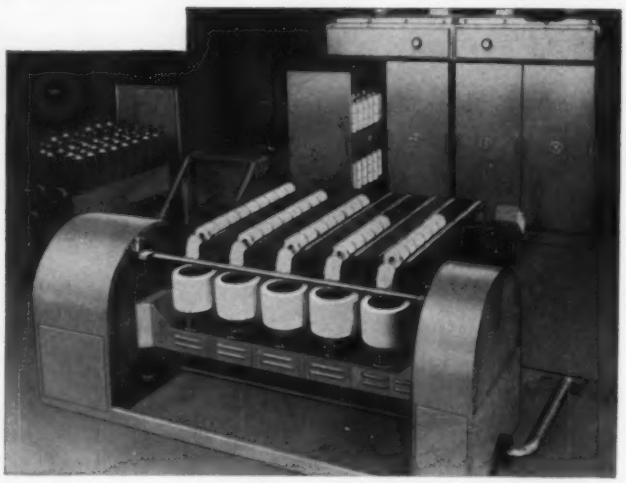
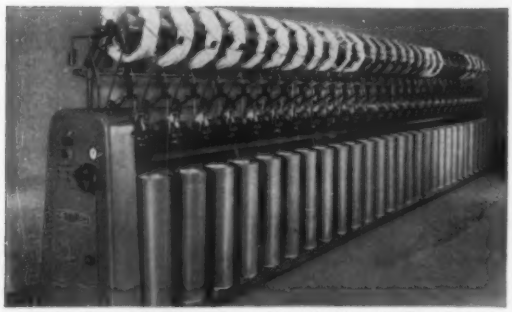


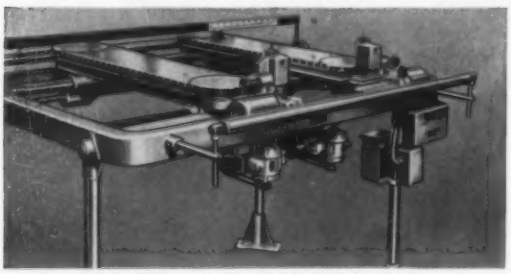
Croon & Lucke Reeling Machine—for rapid change reeling.

Scholl 5 Head "Secomat"—5 centrifuges and drying chamber for dyed or bleached yarn packages.

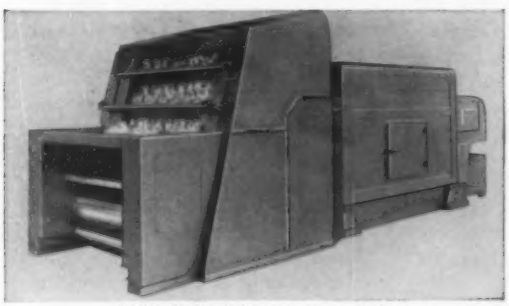




Mettler Skein to Can Winder—for tensionless handling of knitting yarns.



Erhardt & Leimer, Cloth Feed-in and stretching device.



Schilde, Air Penetration dryer for raw stock.

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Scholl	Package Extractor and Dryer—Laboratory Dyeing Machine
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lengths of knotless yarns is becoming increasingly popular with progressive mills in Britain. The yarn processing cost is slightly increased as the time taken to produce a well spliced joint is around two minutes. Besides the gain in length on a package there is a very real reduction in waste so that there are in fact very real economies to be made by this device. The biggest value is in the greater customer satisfaction that it provides and that is the best way to keep an order book filled.

A machine for this operation is now in commercial production—a large unit of 25 heads to which the yarn packages for jointing are brought. While the revolving heads are taking out twist the operative can be carrying out the manual stages—threading up the fixed and twisting heads and twisting together the unwound single yarns.

There are also portable (battery or mains operated) single head units which are arranged on a small trolley to enable the splicing operation to be carried out at the winding frame. The versatility of this latter type makes it very popular and it is becoming very widely used by sewing thread manufacturers and also for high quality two-fold poplins, linings, etc., as well as for some industrial cloths demanding very smooth surfaces.

CONTRIBUTOR No. 1212

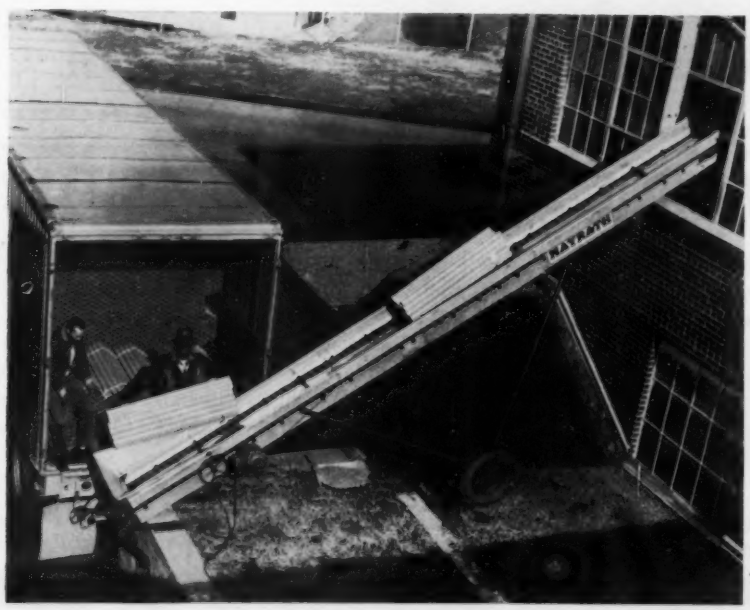
Used grain elevator saves $40 weekly

THE EDITORS:

The picture shows a used grain elevator purchased at a cost of less than $400 being used for unloading a trailer of paper tubes at a southern finishing plant. The trailer is backed right up to the elevator, which remains permanently in this position, and the driver and one helper unload the tubes onto the conveyor which carries them up through an open window to the place of storage.

This operation can be done in less than two hours or a total of four man-hours. Formerly, the tubes had to be hand-trucked a distance of 300 feet and took six men approximately four hours or a total of twenty-four man-hours; thus, a net saving of twenty hours per load of tubes. The average consumption of tubes is 1½ trailers a week so the total labor saving is approximately $40 per week. The elevator paid for itself in approximately ten weeks and is now making good money week after week.

CONTRIBUTOR No. 1230



Spray gun is cleaning aid

THE EDITORS:

Mills running spun yarns have a great measure of trouble keeping the lint cleaned off the looms. Some use air, some use brushes, etc., to do the cleaning, but all try to remove the lint and other foreign matter that decides to stick to the loom frames.

We use a spray gun in our cleaning program, and we made it from a nozzle and a short length of hose (approximately five feet) that conducts cleaning fluid from a container.

We cut a hole in the short hose, about a foot from one end, and when we wish to use cleaning fluid we insert the nozzle (attached to the main hose) into this small hole and drop the other end of the short line into the cleaning fluid. As the nozzle directs the air stream through the short hose, the drop in pressure allows the fluid to rise and enter the air stream. We direct the spray against the loom.

After we drench the loom to our satisfaction, we allow it to soak a few minutes before we blow it dry and clean with the main hose.

CONTRIBUTOR No. 1176

Card cylinder edges kept clean

THE EDITORS:

When card cylinders clog from waste trapped between the frame and the cylinder edges, it usually is because some waste, entering from the open sides of the machine, has been thrown by centrifugal force to the outer borders where it is trapped. To prevent this, attach a small brush so it will rest against the cylinder edges. Often this can be done by securing the brush to one of the plates used to enclose the bottom of the card frame, and letting a light spring hold the brush against the cylinder.

Not all cards have the cylinder near enough to the frame side for

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There's no limit to the lace patterns with the NEW KIDDE 24 BAR RASCHEL KNITTER

Look at the lace in the picture. Every one of those intricate and varied patterns can be made on a single machine . . . Kidde's new 24 bar knitter. Look again at the quality of the lace . . . at the fine detail and the clear outlining of the pattern. That's quality lace turned out at moderate cost.

This new addition to Kidde's line of Raschel knitters is built to operate with 24 bars . . . but can be used with 14 or 18 for less intricate patterns. It turns the lace out fast, too . . . up to 300 courses per minute.

Like all Kidde machines, the new 24 bar knitter is simple, accessible and easy to work on. Equally important, it is ruggedly built to withstand round-the-clock, high speed operation. Write to Kidde for full information.

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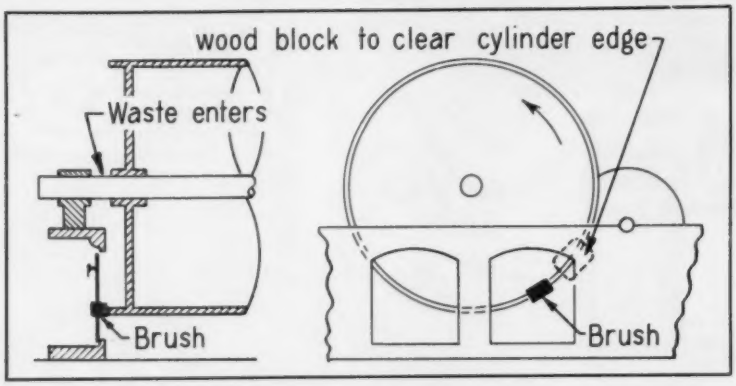


brushes to be conveniently mounted. For instance, Platt cards (1910) have enough clearance for a wooden plate to be attached close to the cylinder. But for Dobson cards I had to devise the brush.

CONTRIBUTOR No. 1150
(Italy)

Wet twisting gave a better sewing yarn

THE EDITORS:

The Research Committee of a cotton ply-yarn mill making mercerized yarns for sewing, both for the needle trades and for domestic use, was working on a suggestion to wet twist the plied yarn instead of dry twisting as had been done previously.

While it was the consensus that a better looking product would result from the dry twisted material, there was a hope that a higher strength of the wet twisted ply would give the company an edge over competition, particularly if some way could be developed to keep the appearance of the finished product on a par with that of the dry twisted ply.

The interest, for the moment however, centered on the strength and elongation factors. It was conceded that further investigation would have to follow in the stitching room to ascertain the effect of the expected greater elongation of the wet twisted product on the seams of the sewn fabric.

Tests were made on a skein from each of four different units. The dry tests were made on the skeins which had been hung up in an air-conditioned laboratory. The wet tests were made after immersing the dry skeins in water and then putting them through lightly contacting squeeze rolls.

Results of the preliminary investigative work are shown in part in Tables 1 and 2. The former gives the dry and wet strengths and elongations for each of the ten trials on sample No. 1. The average, range, and percentage of variation are shown for the several factors involved.

TABLE 1

Results from Ten Tests on Sample No. 1

	Dry		Wet	
	Strength (lb)	Elongation (%)	Strength (lb)	Elongation (%)
	1.90	9	2.15	11
	2.05	9	2.10	12
	2.05	9	2.15	11
	2.05	9	2.15	9
	1.85	9	2.20	11
	1.95	9	2.10	11
	1.80	9	2.00	11
	2.00	9	2.15	11
	2.00	9	2.20	11
	1.85	9	2.11	12
Average	1.95	9	2.13	11
High	2.05	9	2.20	12
Low	1.85	9	2.10	9
Range	0.20	0	0.10	3
% variation	10.25	0	4.69	27.27

Change due to water: An increase of 9.23 per cent in strength and 22.22 per cent in elongation.

TABLE 2

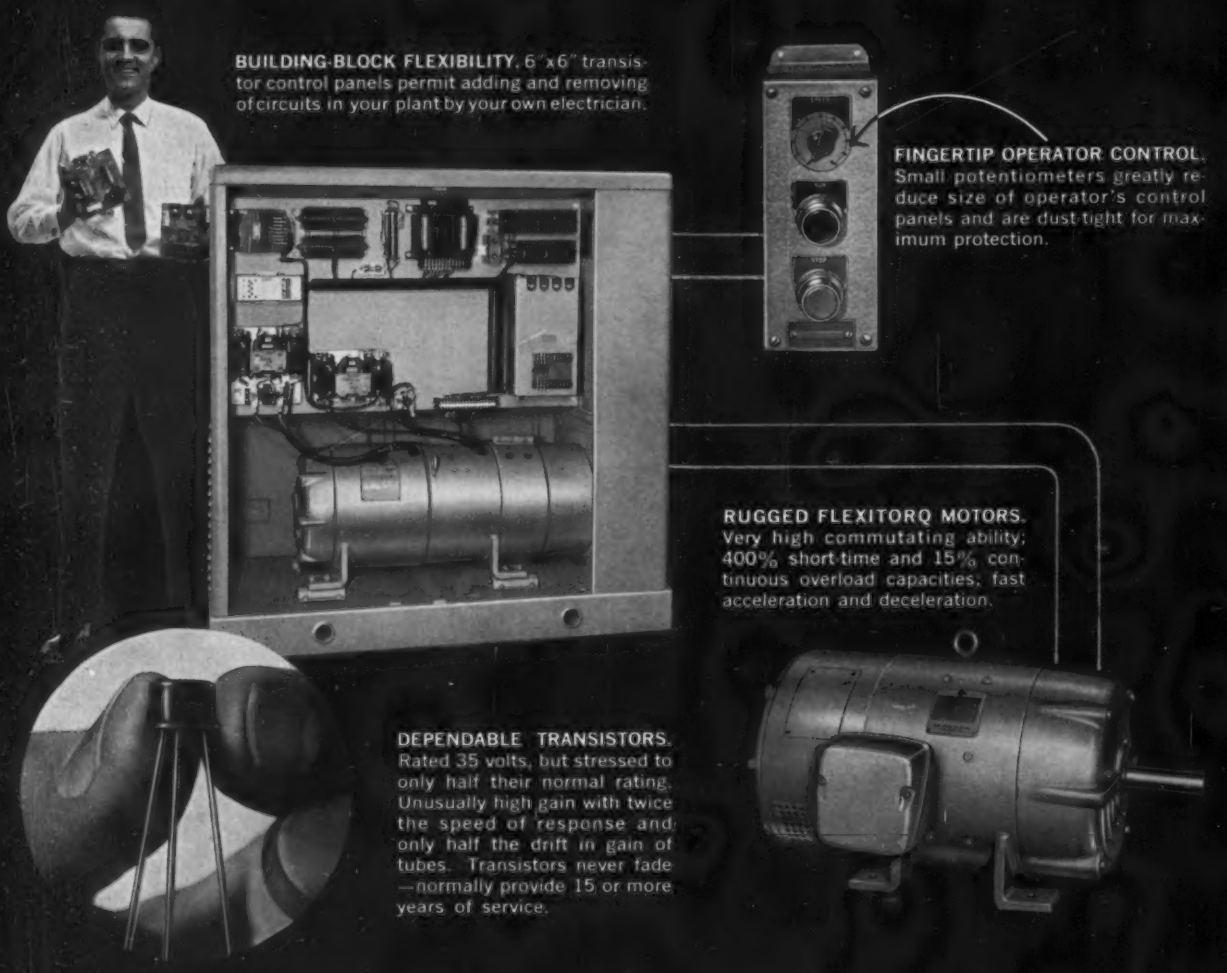
Test Averages on Four Separate Skeins

	Dry		Wet	
Sample No.	Strength (lb)	Elongation (%)	Strength (lb)	Elongation (%)
1	1.95	9	2.13	11
2	1.98	9	2.15	13
3	1.82	8	2.17	12
4	1.90	9	2.18	12
Grand Average	1.91	9	2.16	12

Change due to water: An increase of 14.14 per cent in strength and 33.33 per cent in elongation.

Table 2 gives the average strength and elongation, dry and wet, for each of the four samples. Also the grand average of the tests of the four units and the percentage of variation of the averages of the several items. The percentage of variation in this article, it may be pointed out, is the quotient of the range divided by the average.

Looking over the results of the tests, it will be noted in Table 1 that the strength increase due to the water is 9.23 per cent, while the increase in elongation is 22.22


BUILDING-BLOCK FLEXIBILITY. 6"x6" transistor control panels permit adding and removing of circuits in your plant by your own electrician.
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per cent. Also, that the percentage of variation within the one skein, Sample No. 1, came to 10.25 with no variation in the elongation.

On the other hand, the strength figures of the wet material show less variation, the percentage being 4.69. However, the wet elongation fluctuated considerably, with the resulting percentage of variation of 27.27. This large variation is due to the outstanding figure of 9, and this figure could, conceivably, have been due to a misreading by the testing operator.

In examining Table 2, which gives the end results of each of the four skeins, it will be seen that the grand average percentage of variation for the four follows along the lines of skein number one. A marked exception is the zero percentage of variation of the elongation of the dry twist on Sample No. 1. Possibly a larger number of testings would alter this situation.

Further comparative tests were made with the wet and the dry twisted material. A critical comparison was made of the luster, the freedom from fuzziness, the behavior in the sewing machines. It was felt that the wet twisted material was a sufficiently good match to the dry twisted product to warrant producing a quantity for distribution to the customers.

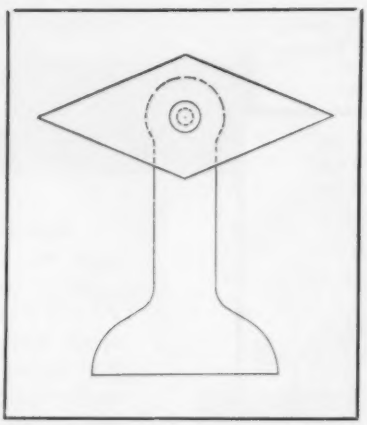
CONTRIBUTOR No. 1200

Drafting aid doesn't smear ink

THE EDITORS:

One of the most annoying situations facing most designers, laboratory, accountants and cost men in textiles and other industries is the care necessary to complete graphic charts, layouts, diagrams, laboratory notes and sketches, and all short-line work in ink without smearing.

To overcome this difficulty and to eliminate nervous tension, a new drafting aid has been designed for the student or professional which speeds inking of charts, maps, sketches, and detail drawings. This simple device consists of two thin, flat, transparent plates of high grade 'Lumarith' stock, securely joined by a sturdy aluminum rivet. The elongated base rests flat upon the drawing surface. The elevated diamond-shaped plate revolves upon the base, completely clearing the drawing surface during an entire revolution.



The bottom plate is held firmly on the drawing board, sketch or chart paper with the side of the thumb. The revolving plate, with the tips of the first and second fingers astride the rivet, is used to draw the lines, and being elevated above the surface of the paper, does not touch the wet ink.

The construction used results in the rapid adjustment of the working edge and permits the operator to continue inking without regard for wet lines. The guide is equally effective with ruling pen, fountain pen, liquid graphite pen, or pencil. A patent is pending on this device.

CONTRIBUTOR No. 1205

Ropy filling prevention

THE EDITORS:

The defect known as ropy or sloughed filling is common in almost all types of woven fabrics. It is most prevalent in soft-fill goods and is the result of a number of turns of filling slipping from the bobbin in rope form and being woven in a single pick of the fabric.

A number of things will cause the filling to slough off, one of them being the bobbin itself. A worn bobbin will not hold the filling securely, and one with a surface that is rough will cause the filling to pull off unevenly. Among the causes are:

1. Worn traverse motion parts of the spinning frame that cause one wind of filling to underlap another
2. Filling that is wound on the bobbin too loosely, either at the spinning frame or at the filling winder
3. A loose shuttle spring
4. A loom picking motion that has too much power
5. Shuttle not boxing correctly
6. Shuttle bouncing
7. Not enough filling tensioning material in the shuttle
8. Pick cam timed late
9. Excessive vibration of the loom

10. Filling bruised or damaged in transit or storage

Some fabrics that contain ropy filling defects can be repaired. Remove the surplus ends with burler's tweezers and rearrange the adjoining filling ends with tweezers or comb to fill the crack in the cloth.

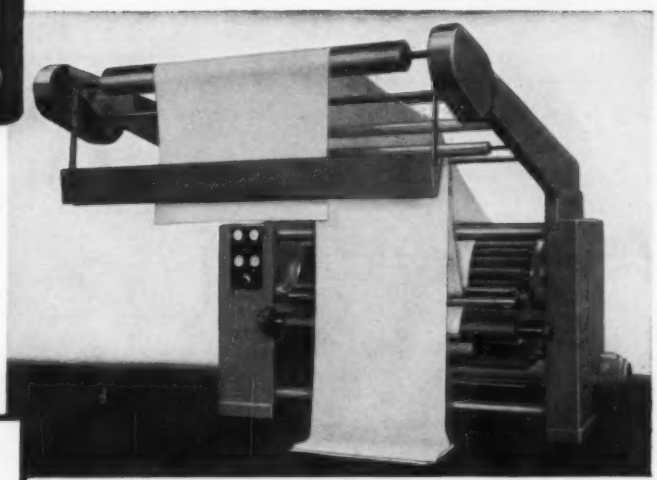
However, ropy filling is a major defect in most fabrics and to try and mend the cloth will usually cost more than it is worth.

The ropy filling defects can be held to a minimum by constant inspection of the cloth as it is being woven, attention to the quality and condition of the filling, and by keeping the looms in good mechanical condition.

CONTRIBUTOR No. 1224

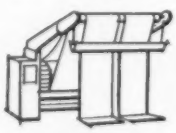
Pressure Controlled Napping

The entire story of the complete napping operation is registered on this single panel.

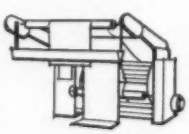


24 Roll Double Acting Hi-Torc Napper

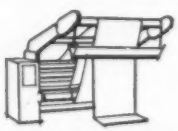
There are only five places in the world where you'll find this pressure control, and that is on each of the five Gessner Hi-Torc Nappers.



30 Roll Double Acting Hi-Torc

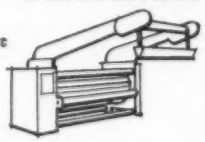


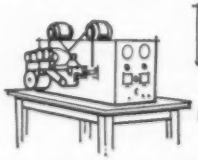
24 Roll Double Acting Hi-Torc



24 Roll Single Acting Hi-Torc

24 Roll Knit Goods Hi-Torc





Laboratory Hi-Torc

Something new? Yes, for those who have yet to avail themselves of Gessner's napping control with positive pressure. By the simple means of pressure, a constant that stays that way at all times, the entire cycle of napping is rigidly controlled — the progress of the cloth, the napping energy, the rotation of the rolls, everything. The operator alone can change it and right at the control panel.

Once the desired amount of pressure is determined, that same pressure may be re-established — anytime. Fabrics to be napped at 100 pounds pressure will always receive the same nap, unaffected by belt slippage, or change in the diameter of the worker rolls.

DAVID GESSNER CO.

WORCESTER, MASS.

Southern Representative:
Richard A. Herard,
222 Piedmont Bldg., Greensboro, N. C.

Western Representative:
E. G. Paules & Co.,
1762 West Vernon Ave., Los Angeles, California

Canadian Representative:
W. J. Westaway,
Montreal, Quebec; Hamilton, Ontario

NEW PRODUCT PARADE

Please note: Claims made in all of these announcements of new developments are of necessity based upon information furnished by the respective suppliers.—The Editors.

Worsted draw frame offers precise weight control

See it at the Atlantic City Show

These mating mechanical rollers detect even minute variations in the weight of entering stock.

A new Pin Drafter, called the Servo-Drafter Intersecting Draw Frame, is designed to produce high quality yarn in fewer operations by maintaining consistent yard-for-yard sliver weight.

Designed for use in all top making, drawing, and precombing applications, the machine retains the features of previous Pin Drafter models; however, it provides the extra advantage of precise weight control—accuracy is within 1 per cent. The machine, in a single draft, can correct input weight variations of as much as ± 25 per cent in wool and the complete range of synthetic fibers. Floor space requirements remain unchanged from previous models.

The combination hydraulic and mechanical control system incorporates a pair of mating mechanical rollers between which each yard of entering stock passes enroute to the faller bars. Variations in stock weight (thickness) cause variations in roller separation, and these variations are transmitted mechanically to a rotating memory wheel.

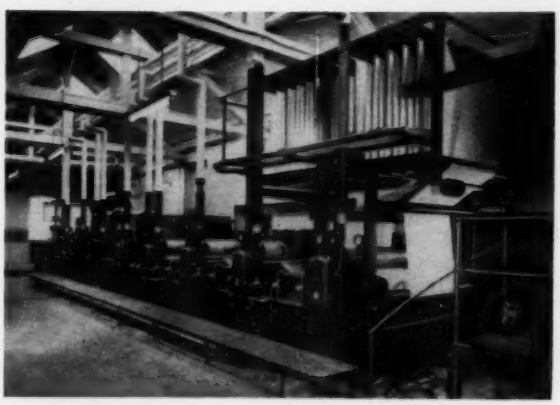
Around the circumference of the memory wheel, at 1/16" intervals, is a series of 120 moveable, precision ground pins which are automatically positioned to correspond to the pattern of roller separation produced by passage of the entering stock. A hydraulic servo translates the pin position variations into faller bar operating speed changes to achieve consistent yard-for-yard sliver weight. In other words, when the memory wheel pins indicate increased entering stock weight, the servo, through a variable speed transmission, decreases faller bar speed proportionately. When the memory wheel indicates decreased entering stock weight, the servo accordingly signals an increase in fallar bar speed.

Faller bar operating speed, as in other Pin Drafters, averages 1,500 drops per minute. This speed, however, is automatically varied over a range of ± 25 per cent with the Servo-Drafter in achieving sliver weight control.

The Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, Ohio.

Do you want more data? Write ◂ or use card on page 225; list D-101

Compact open-width washer is more efficient



The Benninger Type LAA open-width washing machine for use in dyeing, bleaching, printing, finishing, and mercerizing operations offers the following advantages:

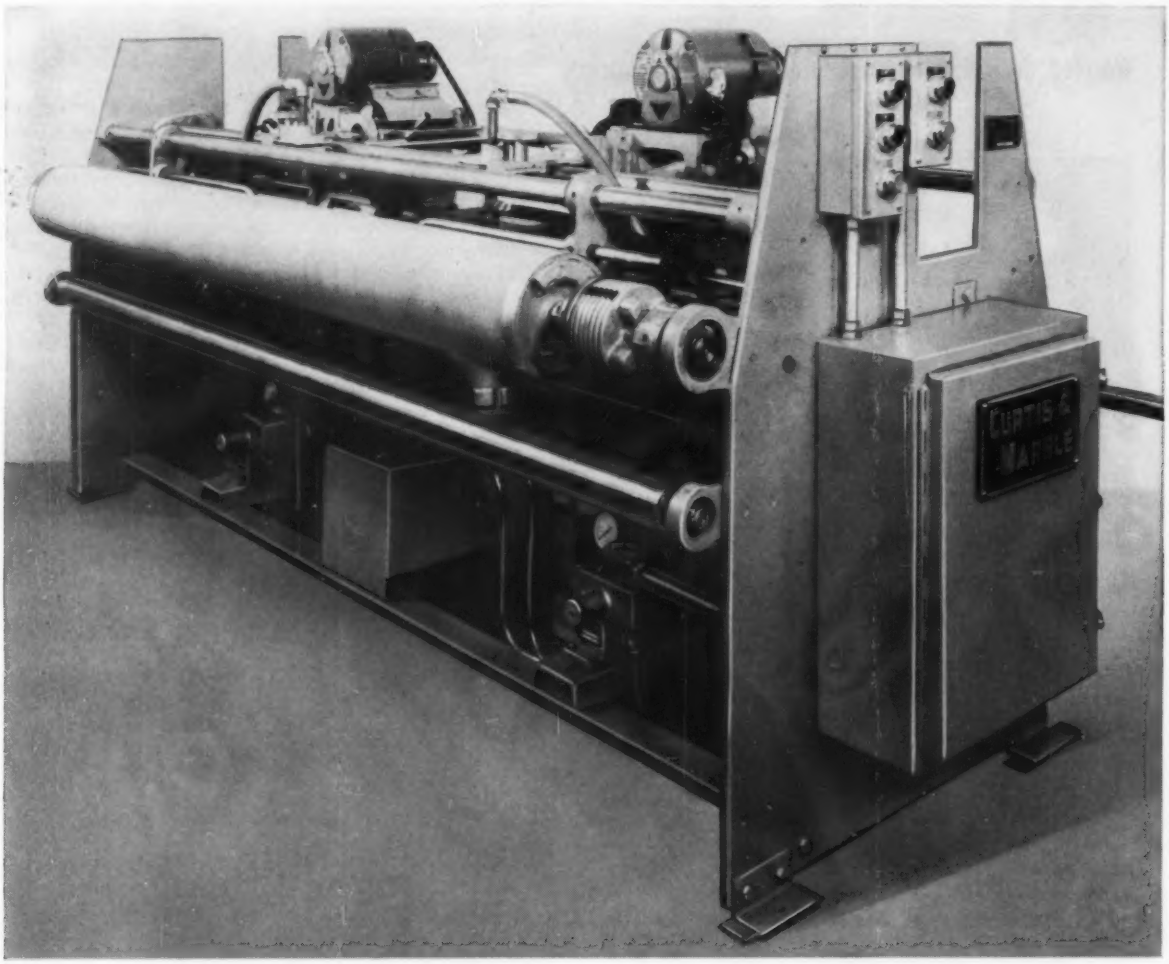
1. Acceleration of diffusion processes by the Turbinator, a device for intensifying and speeding up chemical

THE NEW SL SELVAGE SHEAR

Here's the new high speed precision machine for shearing either one or both selvages of your fabrics. Mill tested, it handles all types of fabrics, as well as fabrics woven on the new Draper shuttleless loom.

Operation is by compressed air with a hydraulic cylinder. Cloth guiding is positively controlled at all times. Handles 14" to 120" width from light weight gauze to heavy denims, terry toweling and blankets from 60 to 110 YPM, depending on the type of fabric. A bulletin describing this SL Selvage Shear is yours for the asking.

IN OPERATION AT A.T.M.A. EXHIBITION AT ATLANTIC CITY • BOOTH 157



CURTIS & MARBLE MACHINE CO.

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HEADQUARTERS FOR FINE CLOTH FINISHING MACHINERY SINCE 1831

processes. Tubular body with four wings effects oscillating movement about its axis over its entire length—2200 oscillations a minute. This oscillation drives the bath liquor in a violent movement against the surface of the fabric.

2. Less floor space required through use of high compartments for delaying action.

3. Improved washing as a result of increased bath turbulence.

4. Intensified fluid exchange between fabric and bath.

5. Absolutely creaseless run of the cloth.

6. Savings in thermal energy, chemicals, and water.

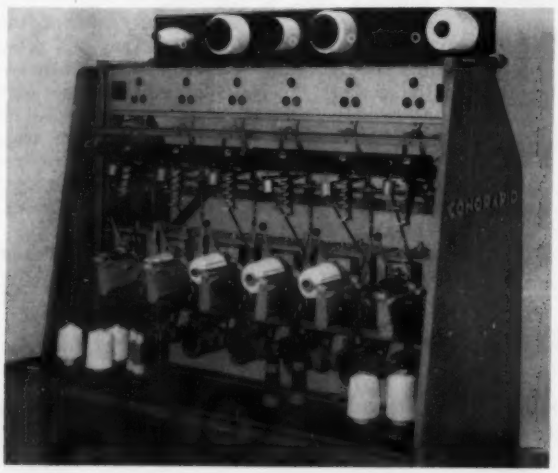
7. Adaptability to all new processes, since all compartments are assembled from a number of basic prefabricated parts.

H. J. Theiler Corp., Ashmont Ave., Whitinsville, Mass.

Do you want more data? Write ◂ or use card on page 225; list D-102

High-speed, precision winder for synthetics

See it at the Atlantic City Show



Featuring an operating speed of 2,000 to 4,000 rpm, the "Conorapid" precision winding machine produces from 1.5 to 3 times as many full packages of yarn in a given time as other similar machines. The high speed and increased production grant economy of space and labor. Also, packages of higher quality are the result as atmospheric and temperature fluctuations are kept to a minimum since less time is required to make a full package—full packages of fine denier yarns weighing from 1 to 1¾ lb are made in from 1 to 5 hr.

Low fluctuation of tension is another feature of the machine. During the building of the package the average tension can be maintained at a constant low or even slightly decreasing. Hence, a firm build-up is obtained, with a uniform hardness from the inside to the outside and over the surface of the package.

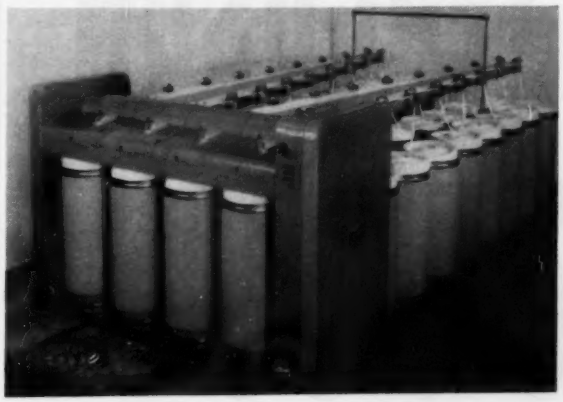
The winding machine is free from vibration, and machine noise is substantially lower. Adjustment of the machine to make various package forms (pineapple cones, cheeses, etc.) can be easily and quickly accomplished. Electric signals show operative when supply packages are empty or yarn breaks.

Robert Reiner, Inc., 550-564 Gregory Ave., Weehawken, N. J.

Do you want more data? Write ◂ or use card on page 225; list D-103

Boosts production at drawing, maintains quality

See it at the Atlantic City Show



Sliver delivery rates ranging from 264 to 590 fpm on combed or carded material are obtainable with the Rieter Model DO drawing frame for single and twin sliver. Costs are reduced by the increased production, while quality is not impaired in any way. Also, productivity per man-hour is significantly greater than with conventional machines.

Among the construction features of the machine are the following: (1) feed tables are equipped with driven calender rolls to insure positively controlled sliver feeding without false drafts; (2) new-pattern Polar drawing arrangement with central adjustment of the nipping distances; (3) axial suction combined with self-cleaning clearing device and pneumatic weighting of top rolls; (4) funnel-shaped delivery plate with entirely new sliver compression, combined with suction clearing; (5) coiler wheel with spiral sliver duct; (6) large can sizes (up to 18" x 42") at delivery end; (7) antifriction bearings at all important bearing points and main gearing in oil bath.

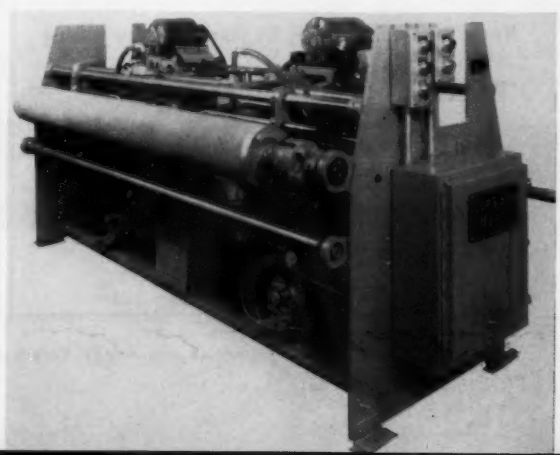
American Rieter Co., Inc., P. O. Box 777, Caldwell, N. J.

Do you want more data? Write ◂ or use card on page 225; list D-104

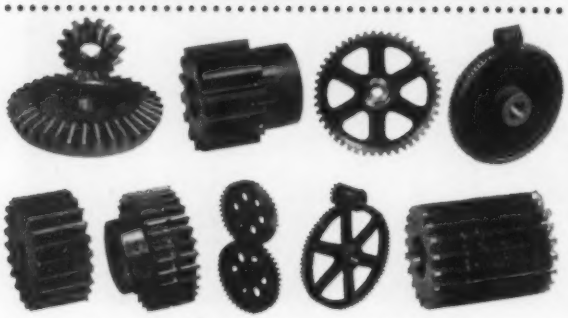
Accurately trims selvages at 60 to 110 ypm

See it at the Atlantic City Show

Recently placed on the market was a high speed precision selvage shear which was developed primarily for trimming off the fringe made by filling yarns extending from the selvage of cloth woven on the Draper shuttle-



GEARS TO YOUR SPECIFICATIONS BY
FERGUSON



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less loom but also has been found to be adaptable to all types of goods from light weight gauze to heavy denims, terry toweling, blankets, and sleazy glass fabrics.

Known as the SL selvage shear, it is operated by compressed air with a hydraulic cylinder, and the guiding of the cloth through the 6" cutting parts is positively controlled at all times. The selvage edge is detected in an air gap, so there is no mechanical distortion of the selvage. Depending on the type of fabric to be sheared, speeds of from 60 to 110 ypm can be obtained on either one or both selvages simultaneously.

This shear, which is being manufactured to take goods in all standard widths from 50" to 120", can be used as a part of a cloth finishing range or operated as a separate unit with scray and rolling machine. Widths of fabrics from 14" to 120" can be sheared with single or double unit cutting parts.

In operation, the selvage of the cloth traveling in a horizontal plane interrupts an air stream in the gap of the edge detector which is adjustably mounted with the shearing head. When the selvage interrupts approximately 50 per cent of the air stream, the relay is in balanced position and the hydraulic cylinder which guides the shearing head to the cloth selvage is stationary. As the selvage moves laterally within the detector, it allows more or less air to reach the relay which, through the hydraulic cylinder, automatically reestablishes the correct shearing position. As the edge detector is adjustably fastened to the shearing head, it may be set to shear to any residual fringe length from 1/32" to ¼" and thus meet any particular fabric requirement.

Curtis & Marble Machine Co., 72 Cambridge St., Worcester, Mass.

Do you want more data? Write ◂ or use card on page 225; list D-105

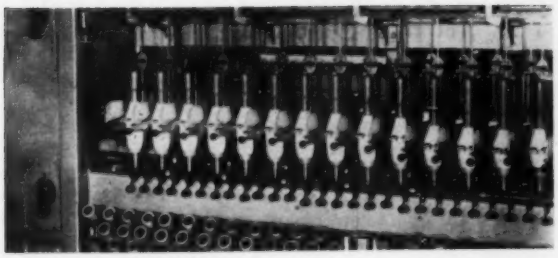
Spins yarns directly from waste at low cost

Mill installation of the Permo Spinning Unit. From right to left are: Scotch feed, finisher card, tape condenser, and spinning frame.

With the Permo Spinning Unit, a machine that continuously spins yarn directly from waste, card fly and strips, noils, card and spinning sweeps, vacuum scavenger waste, etc., can be economically made into coarse yarns for tufting and for use in fabrics to be napped, hosiery, towelling, upholstery and drapery fabrics, mops, etc.

Production potential of the machine is illustrated by the fact that a 32-spindle unit making 1.5s yarn from rayon waste at a spindle speed of 2,000 rpm and twist of 2 tpi will make about 32 lb of yarn an hour. Since one operator can tend approximately 160 spindles, he can produce from raw stock about 160 lb of yarn an hour, serving as card tender, spinner, and winder operator.

The unit consists of a breaker card, Scotch feed,



Spindles are arranged in two rows (as on a roving frame), and there are two front rollers, one for each row of spindles. Spindle speed can be varied from 1,000 to 6,000 rpm through a variable speed gear which can be adjusted while machine is running. Spindles can be doffed independently, and during the doffing period the ends are carried away by vacuum scavengers to the feed portion of the machine.

finisher card, tape condenser, and a large package ring spinning frame. As the ends leave the condenser tapes, they are carried directly to the front rolls of the spinning frame without draft, spun into yarn, and wound into large packages (either 4" x 14" or 5" x 15" bobbins).

Louis P. Batson Co., P. O. Box 772, Greenville, S. C.

Do you want more data? Write or use card on page 225; list D-106

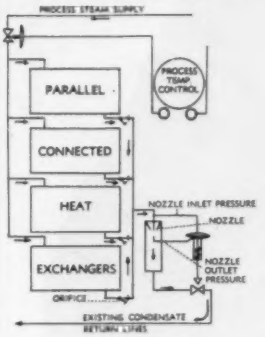
Creates original patterns for knitting mills

A contract design service is available to domestic knitting mills. It consists of delivering to clients "design packages" that include a painting of the original pattern, wheel reading, stripe mechanism reading, knitting and yarn instructions, and four-color combinations (in addition to the one shown in the painting). Wheel readings are clearly presented for easy machine set-up.

Knitworld Designs, Inc., 41 W. 57th St., New York 22, N. Y.

Do you want more data? Write or use card on page 225; list D-107

Condensate control ups drying equipment capacity



The production capacity of dry cans, tenter dryers, slasher cylinders and ovens, yarn dryers, and similar steam-heated equipment may be increased from 25 to 200 per cent with the recently announced Abrogast 3-Element Condensate Control, a system which discharges

LONGER, HEAVIER LAPS WITH THE

LONG PNEUMATIC LAP CONTROL SYSTEM*

These systems may be applied to any existing picker. Positive, controlled air pressure on pin ends deliver uniform pressure on laps forming on calender stack rolls —from start-up to doffing. Equally effective with both cotton and synthetics. Radical fluctuations common to old deadweight systems are eliminated. May be applied to calender rolls, fluted rolls or both. Waste at ends virtually non-existant. Maintenence costs drastically reduced—up to 32 moving parts eliminated.

PROVEN ON THE JOB!

More than 350 installations have proven the efficiency of the LONG Lap Control System by consistently producing longer, heavier, higher quality laps. Many mills are producing laps up to 75#, with smaller diameters, and are handling such laps manually. Other mills with conveying equipment are making 88# laps.

*Patented U. S. Pat. Off.; Foreign patents applied for.

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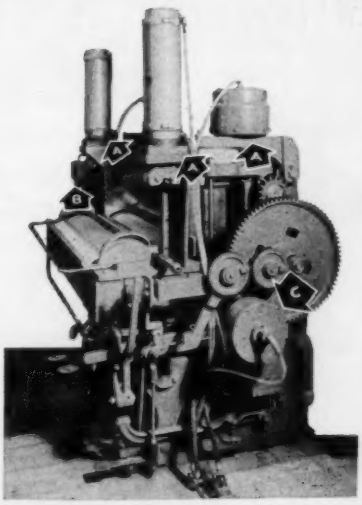

Photo above shows (A) Long Lap Control System installed on picker. (B) L&H Pneumatic Lap Pin Pusher. (C) Auto-Pneumatic Picker clutch.

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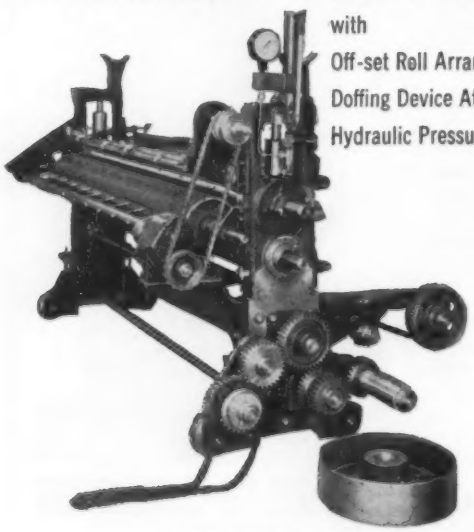

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condensate in a vapor state and prevents the loss of live steam from the equipment. The system actually reduces the amount of steam required per pound of finished material processed and lowers labor and maintenance costs.

The apparatus combines the inlet pressure and the outlet pressure of a nozzle and the pressure generated by the flow of condensate vapor through the nozzle, to automatically position a motor valve. The use of the three control indexes makes it possible to hold steam condensate in vapor form, at any desired vapor concentration after the latent heat of steam has been absorbed by the process.

Installation of the apparatus may be made at any convenient place in the existing condensate line.

Southern Machinery Co., P. O. Box 1193, Charleston, West Virginia.

Do you want more data? Write ◂ or use card on page 225; list D-108

New fibers and yarns

Thinner, more flexible metallic yarn. Recently made commercially available was 50C Metallic Yarn, a metallized "Mylar" polyester base protected on both sides by a plastic coating. When color other than silver is desired, pigment is added to the coating. The new yarn is thinner and more flexible than the laminated "Lurex" yarns. However, because its mechanical and chemical functions are decreased, the 50C yarn should be used in supported form and where it receives "moderate" rather than "heavy" mill processing and consumer wear.

The Dow Chemical Co., Textile Fibers Dept., Williamsburg, Va.

Do you want more data? Write supplier or use card on page 225; list D-201

Acetate inhibits growth of odor-causing bacteria. Now in commercial production for use in lingerie fabrics are acetate yarns that inhibit the growth of bacteria which cause perspiration odor. Sanitized anti-bacterial additives are introduced directly into the spinning mixture from which the yarns are made. Since the anti-bacterial property is "locked" into the yarn, repeated laundering does not remove it. Hand of fabrics is not affected, and the chemical does not irritate the skin.

American Viscose Corp., 350 Fifth Ave., New York 1, N. Y.

Do you want more data? Write supplier or use card on page 225; list D-202

12-color machine simulates hand block printing

Fabrics with a fine, block printed appearance are produced at a high rate of speed on the Lembo Surface Print Machine which is capable of applying from one to twelve colors simultaneously on all textiles (including nylon, glass, and coated fabrics) and plastic film.

Each color has its own block printing cylinder, usually manufactured of aluminum, routed so that the printing surface is in a raised plane. To this cylinder ink is furnished by a doctored sieve cloth and a furnisher roll.

The pattern is so designed as to allow this heavy layer of ink from each color to deposit upon the sheet without overlay or fall on. This layer of ink is dried by various methods depending on ink and base material, and the finished product produced is a simulated hand block printing.

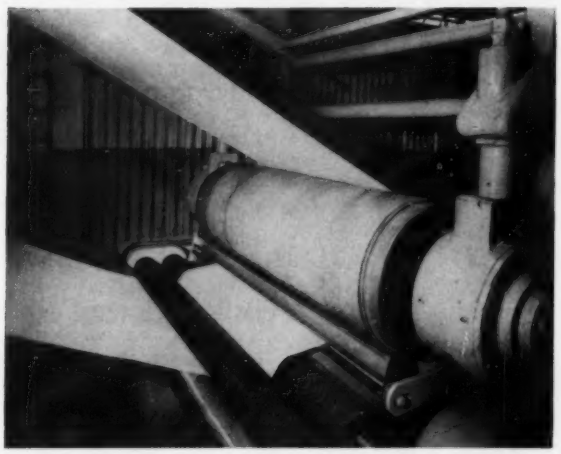
This unit is equipped with 360 degree register control

at each printing station. The center drum is equipped with a center lift, so cylinders remain in register and pressure remains constant.

Lembo Machine Works, Inc., 248 E. 17th St., Paterson 4, N. J.

Do you want more data? Write ◂ or use card on page 225; list D-109

These squeeze rolls last longer, remove more liquid



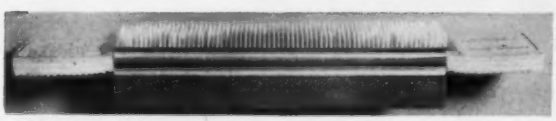
Longer operation without refinishing and higher degree of extraction are advantages to be derived by using Bentley wood fiber squeeze rolls as nip rolls with metal rolls in water mangles, starch mangles, and exit squeeze units on open-width ranges where liquids do not contain dyes or resins. The rolls may often be used for six months to a year before refinishing is necessary.

Surface of these rolls is uniform, and it is not necessary to keep them permanently wet. Their resilient surface recovers in case of moderate indentations or damage.

Rodney Hunt Machine Co., Orange, Mass.

Do you want more data? Write ◂ or use card on page 225; list D-110

How to reduce card waste and maintain quality



When card flats are clothed with Sykes "short cut" top, good fiber is not trapped below the bend of the tooth, as the knee of the wire is just below the surface of the foundation. Consequently, less card waste is made without impairing yarn quality.

The wire, set in an 8-ply virgin-Indian-rubber foundation, is specially tempered to be very strong and hard, and the precision grinding gives a sharpness of point which can be retained for long periods. It will run as long as 5,000 hr without grinding.

Sykes, Inc., 1445 S. Mint St., Charlotte, N. C.

Do you want more data? Write ◂ or use card on page 225; list D-111

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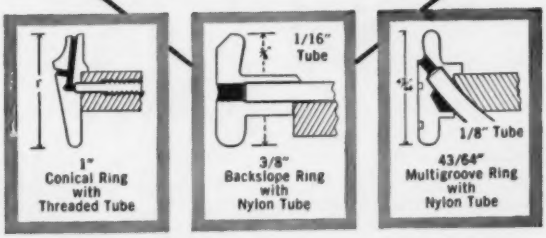
IN ADAPTING RINGS FOR
AUTOMATIC LUBRICATION
Metered & Timed


1/16" Tube
1/8" Tube
1" Conical Ring with Threaded Tube
3/8" Backslope Ring with Nylon Tube
43/64" Multigroove Ring with Nylon Tube

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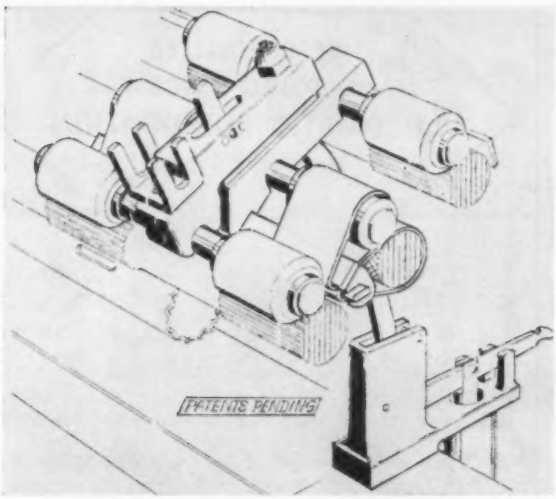

Spinning drafting system has fewer parts

See it at the Atlantic City Show

Now available for installation on existing spinning frames is a drafting system which features simplicity of design. Called the "Phantom" drafting system, it does not have suspension bars, nebs, over-arms, cradles, tension rolls, or weights.

It is not necessary for the spinner to break back roving, as the back top roll automatically lifts ⅛" and the middle top roll and aprons do not revolve.

Aprons are of reinforced synthetic material that does not stretch. A spare apron is installed between the operating aprons of each unit. In case of a lap, the unit automatically backs up to relieve apron strain.

A simple two-piece saddle holds all top rolls as well as nose bars at proper spreads and in parallel relation. Each roll is permitted independent vertical movement. The short bottom aprons of predetermined diameter establish the forward position of the complete assembly, and hold it in exact parallel relation with the bottom steel rolls. The normal forward thrust on the top roll assembly establishes uniform tension on bottom aprons. A stirrup guide on the pressure unit attached to roller beam in place of pivot screw holds the top roll assembly on gauge with bosses on steel rolls. Pressure unit is adaptable to spring or gravity weight. A product of Cole Engineering Corp., the system is sold by:

A. B. Carter, Inc., Gastonia, N. C.

Do you want more data? Write ◂ or use card on page 225; list D-112

Spray fabrics with plastic for unusual effects

Vinyl plastic in the form of liquid dispersions is available for obtaining unusual decorative effects on fabrics by the veil-spraying technique (described on page 131 of this issue).

Called Wilflex Vinyl Dispersions, they are custom-compounded to any desired properties, including: color

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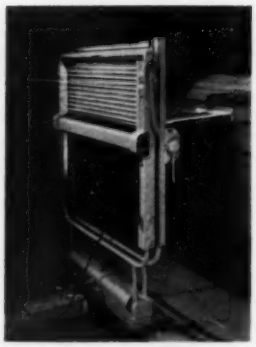
—unlimited; adhesion—excellent for most materials; wear resistance—excellent; flexibility—inherent; durability—fast to cleaning, light or other deterioration; hand—any desired degree of hardness or softness may be obtained; multi-dimensional—may be foamed to increase three dimensional effect or thinned to lay almost flush with fabric; flammability—fire-resistant.

Flexible Products Co., P. O. Box 306, Marietta, Ga.

Do you want more data? Write ◂ or use card on page 225; list D-113

How to speed up leasing at sectional warpers



A new machine for use with sectional warpers splits the yarn sheet into several layers for quick and accurate insertion of lease bands or strings. Designated the Benninger Type ZUA Leasing Device, it was designed especially for use with the Benninger ZA sectional warping machine which features a drive that allows speeds up to 880 ypm for warping and 220 ypm for beaming.

Other benefits to be derived by using the leasing machine are: guides yarn sheet in straight line from creel to drum; no differences in yarn tension; fewer end breaks.

Split rods are placed between creel and lease reed. Frame and split rods can be swung backward to bring all ends on one level for rapid handling of broken ends. Lease reed is brought to top and bottom position for inserting lease strings.

H. J. Theiler Corp., Ashmont Ave., Whitinsville, Mass.

Do you want more data? Write ◂ or use card on page 225; list D-114

New finishes and chemicals

Tricot fabrics with greater softness and pliability are the result when "Fanta Soft" finish is used. A combination of a resin binder, micro pigments, and a softening agent, the new finish is highly resistant to yellowing, remains odorless regardless of the age of the fabric, and does not affect shade or light fastness of dyed fibers. It also imparts a greater antistatic quality to tricot and offers a matte finish.

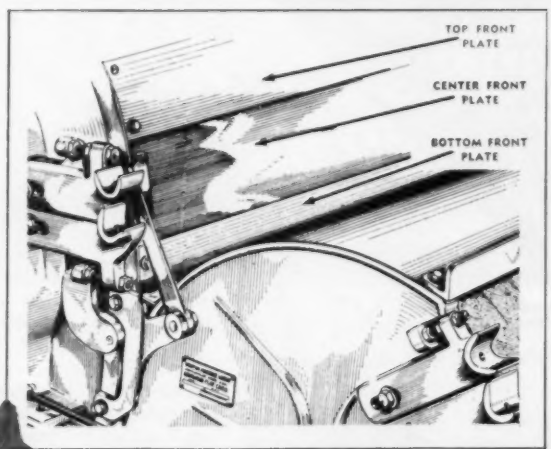
W. F. Fancourt Co., 516 S. Delaware Ave., Philadelphia, Pa.

Do you want more data? Write supplier or use card on page 225; list D-203

Improved antistatic agent. An improved Statikil antistatic agent has been developed and is now available packaged in self-spraying cans or bulk for use in neutralizing static electricity on textile materials and machinery. The product may be used as liberally as needed, but small applications are usually productive of results. The effect is cumulative so that continued use provides

CARD PLATES-

PRECISION MADE OF QUALITY
ROLLED STEEL
GROUND and POLISHED



Smooth, close setting CARD PLATES are necessary for good carding. ALL CARD PLATES should be checked periodically for smoothness and straightness. Rough plates are ineffective and costly in the Carding operation.

JENKINS manufactures CARD PLATES — standard or special — for all makes and sizes of cards. Ground and Polished — inside and outside. Straight and true to close tolerances.

Why not talk to a JENKINS METAL SHOPS representative about it? They are SPECIALISTS in Textile Metal Products.

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P. O. BOX 1160
GASTONIA, NORTH CAROLINA

a durable static freedom. The product dries instantly and invisibly.

Statikil, Inc., 1220 W. Sixth St., Cleveland 13, Ohio.

Do you want more data? Write supplier or use card on page 225; list D-204

A renewable flame retardant for treating all natural and synthetic fibers except acetate is particularly good for treating high pile and velour fabrics which enclose a large volume of air and burn readily. Called Flame Retardant No. 100, the inorganic material is quite resistant to dry cleaning, but it is not fast to washing.

Manufacturers Chemical Co., Inc., 930 N. Darien St., Philadelphia 23, Pa.

Do you want more data? Write supplier or use card on page 225; list D-205

Versatile, high-production trim knitter

An improved version of the Lamb Model VS100 flat knitting machine for trimmings is available. Designated the Model VS100-3, it is a double head machine utilizing six individually controlled carriers for knitting (1) two 2-color trimmings, (2) two 3-color trimmings, or (3) as many as six solid color trimmings. When producing either two- or three-color trimmings, the machine is capable of knitting from 250 to 350 yards per eight-hour day; from 400 to 600 yards of solid color trimming can be produced.

Trouble-free operation is a result of the improvements. An individual cloth take-down of double steel roll construction is provided for each section.

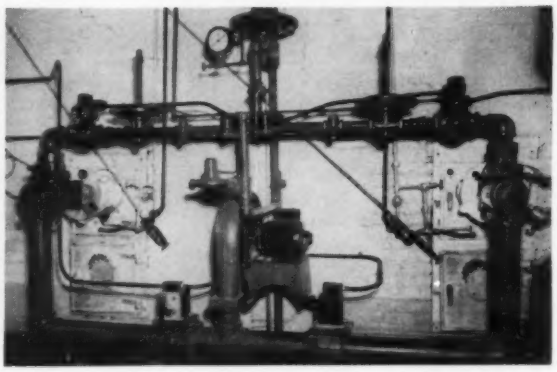
Machine is offered with either the standard one-needle gear controlled rack or a one-needle chain controlled rack for knitting pointed collars or trimming. It is also equipped with drop locks for knitting regular rib, half and full cardigan. For additional flexibility, tubular locks are also available.

Lamb Knitting Machine Corp., Chicopee Falls, Mass.

Do you want more data? Write ☁ or use card on page 225; list D-115

Converts steam-heated dryers to gas-fired

See it at the Atlantic City Show



Steam-heated tenter frames, loop dryers, or enclosures may be converted to utilize gas for drying and curing with a recently announced gas-fired combustion system

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which is especially advantageous where high temperatures required cannot be achieved from present steam facilities.

The gas-fired combustion system is furnished complete with automatic temperature control and combustion safeguard system to meet insurance requirements.

Dudley, Garland & Jensen, Inc., 126 Gould St., Needham Heights 94, Mass.

Do you want more data? Write ◂ or use card on page 225; list D-116

Equipment briefs

A new all-metal transfer bunter and binder rest for C&K Model C-4 and C-5 looms is designed to eliminate sidelines caused by breakage of the filling on the first pick, or by trapped filling between the box guide and the binder. The highly polished curved ear of this new part, designated No. 4690, guides the shuttle into the box with an improved, smooth, positive action, and, at the same time, increases shuttle life. There are no parts to wear. Maintenance costs and downtime caused by breakage are significantly reduced as the part is cast of malleable iron alloy.

H. F. Livermore Corp., Allston Sta., Boston 34, Mass.

Do you want more data? Write supplier or use card on page 225; list D-206

A lightweight reel-fed strapping tool for shipping departments has a new type gripper opening that makes loading and aligning strap a fast, easy job. Known as Model 1915, the tool can be operated by a right or left handed person with the reel in front of or behind the operator. Since seal can be placed behind take-up wheel, there is no strap waste; if desired, seal can be placed in front of wheel. Operates smoothly in horizontal or vertical position. Wide take-up wheel permits extremely high tension, while finely graduated take-up holds exact tension desired.

A. J. Gerrard & Co., 1950 Hawthorne Ave., Melrose Park, Ill.

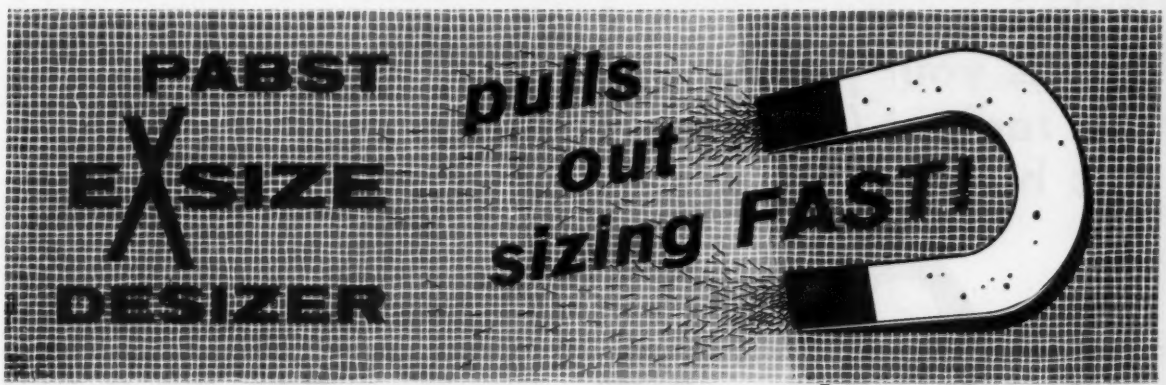
Do you want more data? Write supplier or use card on page 225; list D-207

Electronic gear pitch tester. A gear testing machine recently announced uses the Sanborn electronic recorder coupled with either the Scherr 2" or 5" gear tester or the Parkson 9" or 15" gear tester. The recorder can be calibrated to any ratio within the limit of the recording tape. One line on the paper can be made to equal from .00005" to .001", depending upon the pitch of gear being checked. Driving motor is available to drive gear being checked. Gears can either be checked in pairs or against a master gear.

Scherr-Tumico Co., 200 Lafayette St., New York 12, N. Y.

Do you want more data? Write supplier or use card on page 225; list D-208

Get better looking seams with tape pull-off device. For use with Union Special Class 39500, 50000 series, and lockstitch machines is a tape pull-off device which permits a better appearing seam to be produced on T-shirts, polo shirts, sweat shirts, sport shirts, sweaters, etc. Driven by its own motor, the device is designed to deliver smoothly and uniformly tape, elastic, and similar



Pabst Exsize takes the starch out of cotton fabrics in a hurry! That's because its built-in heat stability makes Exsize work especially well in high-speed desizing ranges. It's uniform too. Every lot is carefully controlled for uniform enzyme activity and always gives you the same safe, speedy action. Order Exsize soon for the best finishing you've ever had.

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manufacturers of infra-red gas burners

items from a roll, reel, or spool.

Union Special Machine Co., 400 N. Franklin St., Chicago 10, Ill.

Do you want more data? Write supplier or use card on page 225; list D-209

An elapsed time controller for batch type operations will provide timed automatic regulation of either temperature or pressure (the systems are interchangeable). Designated Model 7003, the controller is activated by an external start button, and a red signal light indicates the start of the process. As the measured variable approaches the control point, the timed phase of the cycle begins—indicated by a green signal light. When the preset timed period has elapsed, both lights go out, the controller automatically shuts down, and the timer resets and is ready for a repeat cycle.

Weston Instruments Div., Daystrom, Inc., 614 Frelinghuysen Ave., Newark 12, N. J.

Do you want more data? Write supplier or use card on page 225; list D-210

Sludge collectors for water and waste treatment settling tanks. Two new series of "Circuline" sludge collectors for water and industrial waste treatment settling tanks are available: Series U is a Uniflow settling tank with a rapidly sloping bottom, tank-type sludge collector and multiple effluent weirs. Important savings in construction costs are possible with the tank since the sloping bottom permits volume of tank to be reduced 25 per cent or more without reducing surface area or overflow rate. Series A is an aeration sludge collector for pre-aeration and settling. It consists of a single circular tank in which both aeration and settling are accomplished. Collecting mechanism removes solids from both aeration compartment and settling compartment.

Link-Belt Co., Prudential Plaza, Chicago 1, Ill.

Do you want more data? Write supplier or use card on page 225; list D-211

Accurate multipurpose stroboscopic instrument. The Mayer "Touro-Strob" may be used for measurement of speed and for study of the operation of moving parts such as spindles, ring travelers, loom components (shuttles and pickers), etc. The handy, package size instrument weighs only 4 lb, operates on 110-volt a-c current, has a capacity of 200 to 15,000 rpm, is accurate within plus or minus .5 of 1 per cent, and has a flashing range up to 15,000 per minute.

Lenkotex Co., Inc., 136 Liberty St., New York 16, N. Y.

Do you want more data? Write supplier or use card on page 225; list D-212

Detects and measures without physical contact. The Security electronic sensing control recognizes metallic and nonmetallic objects without physical contact, as they enter a capacity field. Designated as Model 400, the apparatus consists of a sensing element or probe of any form or size connected by coaxial cable to the electronic control. Not only does unit recognize errors or deviations from constant as objects enter the field, but it indicates whether the sensed objects are too large or too small, too far or too near to a predetermined position or setting. Detection is expressed in numerous ways, such as stopping a machine, actuating a rejecting or correcting device (via plus-minus relays), or signalling for action by attendant.

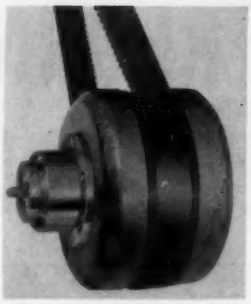
Security Controls, Inc., 503 Franklin St., Buffalo 2, N. Y.

Do you want more data? Write supplier or use card on page 225; list D-213

Variable speed pulleys use narrow belts. Five new variable speed pulleys, including adjustable motor bases, V-belts, and sheaves, have been added to the Hi-Lo line of cam-operated pulleys. Utilizing economical narrow V-belts, they provide speed ratios of 3 to 1. Rated for 1, 1½, 2, 3, 5 hp motors at 1750 rpm and for ¾ to 3¼ hp motors at 1150 rpm. Can be easily and quickly installed on new or existing equipment to provide instantaneous speed changes with only finger-tip pressure while machine is running. Other advantages: constant speed even under overload conditions, no compression of belt, automatic belt tensioning to continuously match load, and constant belt alignment.

Lovejoy Flexible Coupling Co., 4949 W. Lake St., Chicago 44, Ill.

Do you want more data? Write supplier or use card on page 225; list D-214



Hi-Lo cam-operated variable speed pulley (Lovejoy).

Dispenser for wide tape, by A. J. Gerrard.

Dispenser for wide pressure-sensitive tape. Rolls of tape up to 3" wide may be easily used with a new hand dispenser that is light in weight (made of aluminum) and features a special cut-off blade to shear through glass filament reinforced tape.

A. J. Gerrard & Co., 1950 Hawthorne Ave., Melrose Park, Ill.

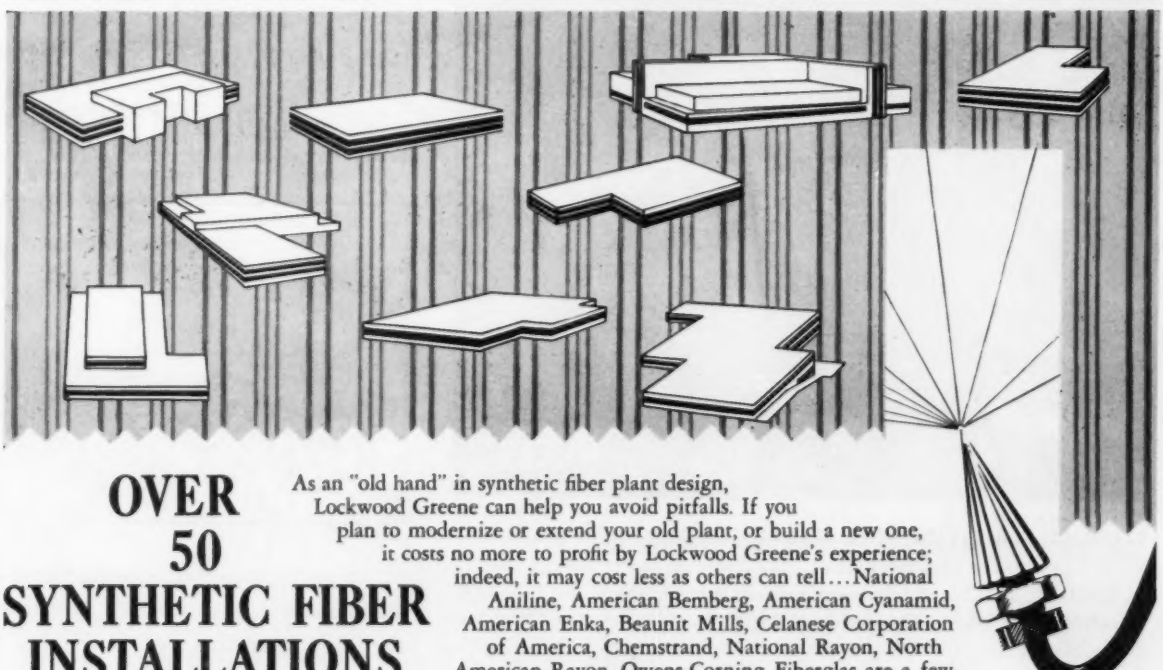
Do you want more data? Write supplier or use card on page 225; list D-215

Device cuts filling waste at loom. A recently introduced attachment for Midget feelers is designed to maintain better control over pieces and waste made at filling change. Called Lee's Feeler Stabilizer, it aids in keeping to a minimum the amount of yarn left on quills when removed from the shuttle. May be used with all kinds of yarn—cotton, synthetics, and blends. Adaptable to any loom equipped with the Midget feeler, regardless of tip. Easily installed and adjusted. Practically no maintenance cost.

Raymond H. Lee, Box 173, Anderson, S. C.

Do you want more data? Write supplier or use card on page 225; list D-216

Apply this anti-resin, anti-corrosion agent in mill. An improved "Water-Skipper" anti-resin and anti-corrosion agent is available for protection of resin, latex, and size application equipment against excessive and expensive shut-downs for removal of build-up of these materials and also for prevention of metal corrosion and pitting. Designed for application to tenter frames, dry cans, slasher cylinders, squeeze rolls, etc., on the job, the product forms a non-curing, tenacious film that is highly



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Literature on request.

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Toluol	105
Naphtha, H.A.	95
Turpentine	55
Naphtha, VM&P	34
Mineral Spirits	32
Kerosene	23

When everything is considered, pine oil still remains an outstanding ingredient for many diversified uses.

Pine Chemicals Division, Naval Stores Department

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resistant to both high and low temperatures, high humidity conditions, as well as chemical fumes and vapors. Simple periodic wash-downs with hot water are usually sufficient to remove daily surface deposits of resins.

Textile Adjuncts Corp., 4907 Farragut Rd., Brooklyn 3, N. Y.

Do you want more data? Write supplier or use card on page 225; list D-217

Corrosion control where acids and solvents are used is provided by two recently developed coating systems. For use where there is exposure to sulfuric acid of 75 per cent concentration or higher or concentrated nitric or phosphoric acid, a three-coat system involving a special chlorinated rubber base coating and Truscon Chemfast Primer is recommended. For use where there is exposure to such very active solvents as ketones, esters, and alcohol ethers, a special Devran Epoxy Primer and Finish Coat is available.

Truscon Laboratories, Box 69-E, Milwaukee Junction, Detroit, Mich.

Do you want more data? Write supplier or use card on page 225; list D-222

Turning of seamless stockings is unnecessary when the Solis Pneumatic Stocking Take-Up Attachment is utilized; hence, percentage of pull-threads is reduced and uniformity of knitting is improved. Applicable to all makes of seamless knitting machines in the 3½" and 3¾" sizes, the attachment has its own motor and fan. Also available is the Solis stop motion attachment for automatically stopping a knitting machine when a yarn break occurs.

Roy D. Faigenbaum, Melrose Park, Philadelphia, Pa.

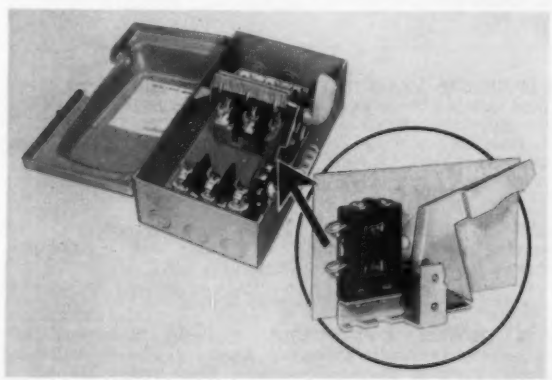
Do you want more data? Write supplier or use card on page 225; list D-223

Speeds blanket cutting operation. Now available is a machine that automatically pulls a blanket out to the desired length, cuts it with a 1200-lb guillotine knife, folds the cut blanket once or twice, and stacks folded blankets neatly one on top of the other to a height of four feet or more. Production of the machine is 21 blankets per minute.

Sjostrom Machine Co., Boca Raton, Fla.

Do you want more data? Write supplier or use card on page 225; list D-224

Interlock kit for safety switches. An electrical interlock kit permits field installation of additional contacts in safety switches. Because the interlock contacts make or break ahead of the main switch blades, the new interlock can be used within control circuits. Available for



all Square D heavy-duty safety switches, the interlocks are supplied with one normally open and one normally closed contact. Utilizes standard three-pole switches from stock.

Square D Co., 1601 Mercer Rd., Lexington, Ky.

Do you want more data? Write supplier or use card on page 225; list D-225

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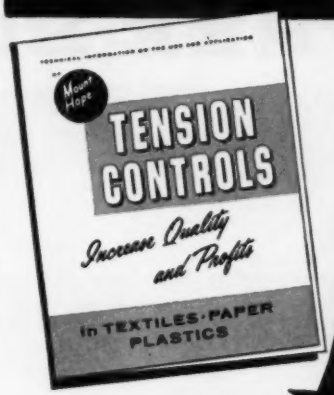

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FREE BOOKLETS

4-1 MACHINE TEAMWORK. Booklet by Mount Hope describes how modern machine teamwork in textile processing can result in new profit concept. Mount Hope Machinery Co., 15 Fifth Street, Taunton, Mass.

4-2 PRECISION ADJUSTABLE-SPEED DRIVES. Catalog describes complete line of adjustable speed drives with accuracies that have previously been associated only with laboratory instruments. Servo-Tek Products Co., 1086 Goffle Rd., Hawthorne, N. J.

4-3 INDUSTRIAL SCALES. New brochure describes and illustrates the wide selections of weighing equipment for various uses. Toledo Scale Corp., Box 97, Toledo Station, Toledo 12, Ohio.

4-4 SURFACTANTS. Catalog describes surfactants by trade name, active ingredients, percent activity, physical state, etc. Onyx Oil & Chemical Co., Jersey City, N. J.

4-5 COTTON CLEANER DRIVE. Bulletin describes newly designed cotton cleaner drive which eliminates choke-ups of cleaner in normal operation. T. B. Wood's Sons Co., Chambersburg, Pa.

4-6 SLUDGE COLLECTORS. Bulletin describes complete line of Circuline collectors available for industrial waste treatment settling tanks. Link-Belt Co., Prudential Plaza, Chicago 1, Ill.

4-7 EPOXY FITTINGS. Catalog sheet describes and illustrates Conley fiber glass reinforced epoxy fittings. Ed Conley Plastic Corp., 91st & Delaware, Tulsa, Okla.

4-8 WEB GUIDING SYSTEMS. Manual describes applications representing over 10,000 installations of web guiding equipment. GPE Controls, Inc., 240 E. Ontario St., Chicago 11, Ill.

4-9 WET PROCESSING PRODUCTS. Products used in textile wet processing are featured in new booklet entitled "Time for a New Look at New Materials." B. F. Goodrich Chemical Company, 3135 Euclid Ave., Cleveland 15, Ohio.

4-10 METALLIC YARN. Bulletin describes 50C metallic yarn, a metalized polyester base protected on both sides by a plastic coating. Product Information Service. The Dow Chemical Co., Williamsburg, Va.

4-11 SHORT CUT TOP. Bulletin describes new card flat clothing for revolving flat carding machines. Sykes, Inc., P. O. Box 297, Charlotte, N. C.

4-12 SPEED REDUCTION. Booklet describes modern methods of speed reduction with compact, shaft mounted units. Bulletin A692, Dodge Manufacturing Co., Mishawaka, Indiana.

4-13 RADIANT HEATERS. Booklet provides detailed information on two types of industrial radiant heaters for drying, baking, and curing. Bulletin PE-70, Plant Equipment Sales Dept., Corning Glass Works, Corning, N. Y.

4-14 AUTOMATIC BOILERS. Booklet describes and illustrates line of high and low pressure boilers in 20hp to 100hp sizes. Orr & Sembower, Inc., Reading, Pa.

4-15 NARO-AISLE LIFT TRUCK. Booklet describes "Naro-Aisle-Stack" towmotor lift truck which reclaims warehouse space lost in wide aisles. Towmotor Corp., 1226 E. 152nd St., Cleveland 10, Ohio.

4-16 MOTOR ENGINEERING DATA. Book aids in selection of motors and generators, covering the entire range of motors and generators, plus useful engineering information. Allis-Chalmers Mfg. Co., Box 512, Milwaukee, Wis.

4-17 HIGH VELOCITY DRYER. Bulletin gives technical data on three new model high velocity dryers which are extremely flexible in operation. Bulletin HV-501. J. O. Ross Engineering, Div. Midland-Ross Corp., 730 Third Ave., New York 17, New York.

4-18 BEARING UNITS. Catalog covers complete line of bearing units, including load rating and comparison charts. Browning Mfg. Co., Maysville, Ky.

4-19 POWER CYLINDERS. Bulletin describes air cylinders, hydraulic cylinders, boosters, etc. Flick-Reedy Corp., York & Thorndale Roads, Bensenville, Illinois.

4-20 AFTERCOOLERS. Bulletin tells how the compressed air moisture problem can be licked by installation of an aftercooler between compressor and receiver tank. Bulletin No. 712, R. P. Adams Co., Inc., 216 E. Park Drive, Buffalo 17, New York.

BOOKLETS

raw stock to roving

T-101 LUMMUS PEPPER - SHAKER OPENER. Gives complete details and photographs. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-102 STATIC ELIMINATION. How to eliminate static safely and inexpensively. Simco Co., 920 Walnut St., Lansdale, Pa.

T-103 CARD GRINDING INFORMATION. Care and operation of cards. B. S. Roy & Son Co., Worcester, Mass.

T-105 VERSA - MATIC DRAWING FRAME. Describes drafting elements, quality of sliver, roving and yarn possible. Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.

T-106 SARGENT OPENER. Describes opener with rotary evener and stripper. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-107 FEATHERTOUCH DRAFTING. How to get "highest production per frame at lowest cost." Ideal Industries, Inc., Bessemer City, N. C.

T-110 BOBBINS. Catalog describes metal, wood and plastic bobbins. Illustrations show actual use. Lestershire Spool Div., National Vulcanized Fibre Co., Wilmington, Del.

T-111 MAGNETIC IDEAS. Booklet shows uses of permanent magnetic separation equipment in opening room as well as throughout mill. Removes tramp iron, prevents fires. Eriez Mfg. Co., Erie, Pa.

T-112 ADVANTAGES OF ALDRICH PICKERS. Good technical text, comprehensive pictures. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-113 NEW CONDENSER TAPE. Describes Supr-O-Tape, an impregnated fabric condenser tape. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia 34, Pa.

T-119 FIBER METER. Automatic weighing and blending assures quality, holds variation to 1%. James Hunter, Inc., P. O. Box 298, Mauldin, S. C.

T-120 PIN DRAFTERS. Textile job report No. 21 tells how Warner & Swasey Pin Drafters help modify jute systems for carpet yarns. Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, Ohio.

T-121 UNIVERSAL CARD COILER. Literature describes both head and base swivel for adjustment. Includes data on 90-day free trial. McDonough Power Equipment, Inc., McDonough, Ga.

T-122 RECONDITION OPENING & CLEANING. Bulletin gives whys and wherefores of reconditioning your opening and cleaning lines. Special attention given to each machine with suggestions as to parts replacement. Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

T-123 COILER CONVERSIONS. Full facts on low initial cost conversion to larger coiler cans. Lists advantages, has complete description. Southern States Equipment Corp., Hampton, Ga.

T-124 CARD DRIVE. Bulletin 301-a describes simple, safe, efficient individual card drive. Southern States Equipment Corp., Hampton, Ga.

T-132 PROCTOR SUPER PICKER. Data sheet gives details of the Proctor Super Picker for use on slabs of baled cotton, or wool and synthetic blends in layers up to 12" thick. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

T-133 ANTI-STATIC AGENT. Data sheet lists basic characteristics of liquid anti-static agent which eliminates processing difficulties with fibers due to static electricity. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

yarn and warp making

T-201 PRODUCTS FOR SPINNING AND WEAVING. Complete line, applications, advantages shown. Dayton Rubber Co., Textile Div., Dayton, Ohio.

T-202 NEW BOBBIN MANUAL. Complete bobbin guide. Lestershire Spool Division, National Vulcanized Fibre Co., Wilmington 99, Delaware.

T-203 SPINDLE OIL. "Gulfspin" insures against excessive wear and eliminates spindle wobble. Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa.

T-205 HIGH SPEED AUTOMATIC QUILLER. Lists advantages and dimensions of "Autocopser." Terrell Machine Co., Inc., P. O. Box 928, Charlotte, N. C.

T-208 PACKAGED SPINNING MODERNIZATION. Details on Collecto-Vac, Open-Aire Creels, Cross-Jet Cleaner, Air Conditioning. Bahnson Company, Winston-Salem, N. C.

T-209 SECTIONAL WARPER. Describes full width and sectional warpers for knitting, weaving. Robert Reiner, Inc., Weehawken, New Jersey.

T-210 CONICAL RINGS AND FLYERS. Complete details and specifications. Herr Manufacturing Co., Inc., 318 Franklin St., Buffalo 2, New York.

T-211 PRECISE WINDING MACHINE. For winding pineapple or straight cones and tubes of synthetics. Foster Machine Co., Westfield, Mass.

T-212 AUTOMATIC CLEANING EQUIPMENT. Working details and advantages of the Tri-Rail Cleaner. American MonoRail Co., 111 East 200th St., Cleveland 17, Ohio.

T-216 SPINNING FRAME CONVERSIONS. Big-package, new-frame results at half the cost. Meadows Mfg. Co., P. O. Box 10876, Station A, Atlanta, Ga.

T-217 COLLECTO-VAC. New development collects lint, fly and broken ends. The Bahnson Company, Winston-Salem, N. C.

T-219 SPINNING AND TWISTER RINGS. Complete details, pictures, price list. Whitinsville Spinning Ring Co., Whitinsville, Mass.

T-222 SUCTION CLEANING SYSTEM. Details on new Collector Unit Model C-4. Pneumafil Corp., Charlotte 8, N. C.

T-223 FACTS ABOUT YOUR FLYERS AND SPINDLES. Advantages of smooth flyer and spindle operation. Ideal Machine Shops, Bessemer City, N. C.

T-225 LAPLESS ENDLESS SPINNER. Full information available. Ton-Tex Corporation, 31 Columbus Ave., Englewood, N. J.

T-227 SPINDLE OILING MACHINE. Features and advantages noted. Wicaco Machine Corp., 4800 Stenton Ave., Wayne Junction, Philadelphia 44, Pa.

T-228 HANDY SPINNING REFERENCE. Shows traveler speeds, sizes of ring flanges. Saco-Lowell Shops, Parts Replacement Division, P. O. Box 327, Greenville, South Carolina.

T-229 UNIRAIL UPTWISTER. Higher yarn quality and better packages at faster speeds. Leesona Corp., P. O. Box 1605, Providence, R. I.

T-230 PRECISION TEXTILE WINDING. Tensions and density control for winding rubber cones. Kidde Textile Machinery Corp., Farrand St., Bloomfield, N. J.

T-231 CONE WINDER. Describes Model 102 winder, including applications. Foster Machine Co., Westfield, Mass.

T-232 SHORT CUT TO STAPLE FIBER SPINNING. Ten steps in operation of the Tow Stapler. Turbo Machine Co., Lansdale, Pa.

T-233 WEAVER'S KNOTTER. Instructions as to use, description. A. B. Carter, Inc., Gastonia, N. C.

T-234 TEXTILE ROLL COVERINGS. Describes complete line as well as other mill supplies. Armstrong Cork Co., Industrial Div., Lancaster, Pa.

T-239 LARGE PACKAGE TWISTER. Information on new anti-friction Jumbo Twister which carries a 14" bobbin with a 12" build. Meadows Mfg. Co., P. O. Box 10876, Sta. A, Atlanta, Ga.

T-241 PACEMAKER TWISTERS. Folder gives details on high production, outlines notable features. Whitin Machine Works, Whitinsville, Mass.

T-242 RING SPINNING FRAME. Folder presents description, illustrations and specifications of up-to-date Simplex ring spinning frames. Davis & Furber Machine Co., North Andover, Mass.

T-243 ANTI-FRICTION TWISTER BEARINGS. Find out how bearings helped make The Meadows Twister almost friction-free. Fafnir Bearing Company, New Britain, Conn.

T-246 BETTER BEAMS. Information on three ways to make better beams. Kidde Textile Machinery Corp., Farrand St., Bloomfield, N. J.

T-249 VARI-SPEED MOTOR PULLEY. Describes variable speed control through use of simplified three-major-part disc-assemblies with only one lubrication point. Reeves Pulley Co., Reliance Electric & Engineering Co., Columbus, Ind.

T-250 SPINNING MODERNIZATION. Booklet shows how lower costs and improved quality are obtained by spinning modernization. Roberts Company, Sanford, N. C.

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		TRUE	FALSE
1	Leukemia is cancer of the blood-forming tissues.	TRUE	FALSE
2	All forms of life, including plants, can develop cancer.	TRUE	FALSE
3	Cancer is not contagious.	TRUE	FALSE
4	More men than women die of cancer.	TRUE	FALSE
5	Pain is a late cancer symptom.	TRUE	FALSE
6	Cancer can strike anyone at any age.	TRUE	FALSE
7	A biopsy (examination of suspected tissue removed from the body) is the only method of proving whether cancer is present.	TRUE	FALSE
8	Surgery or irradiation, or both, are the only means of curing cancer.	TRUE	FALSE
9	An annual health checkup is one of the most effective weapons against cancer.	TRUE	FALSE
10	Over one million Americans are alive today, cured of cancer.	TRUE	FALSE

SCORING: 10: Excellent
6 to 9: Fair
5 or less: Danger! For your own protection, learn more about cancer. Write to "Cancer" —c/o your local post office.

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BOOKLETS

T-255 NEW BOBBIN HOLDER. Details on streamlined, positive latching bobbin holder. Whitehead Die Casting Co., 1140 Zonolite Rd., Atlanta, Ga.

T-256 HUMIDIFIER PROTECTION — Brochure tells how "Rustex" can stop rust and corrosion and prevent discolored water in your humidifying system. Odorless and completely harmless to personnel, or goods. Anderson Chemical Co., Inc., Box 1424, Macon, Georgia.

slashing—weaving—tufting

T-301 COUNTING AND MEASURING DEVICES. Wide range of counting devices for all types of textile machinery. Veeder-Root, Inc., Hartford, Conn.

T-302 LOOM SUPPLIES. Describes complete line. E. H. Jacobs Northern Division, The Bullard Clark Co., Danielson, Conn.

T-304 LOOM PRODUCTION CHARTS. Celluloid card shows yards per loom per week. Ralph E. Loper Co., Greenville, S. C.

T-306 THE STORY OF STARCHES. History and information on manufacture and use of starches. National Starch & Chemical Corp., 750 Third Ave., New York 17, N. Y.

T-308 STEEL WARP BEAMS. Beams for both broadloom and narrow fabrics. Milton Machine Works, Inc., Milton, Pa.

T-309 PENFORD GUMS IN TEXTILES. Describes their excellent properties for warp sizing spun yarns. Penick & Ford Ltd., Inc., 750 Third Ave., New York 17, New York.

T-312 AIR SLASHER DRYER. Shows construction and operating details. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

T-313 BUTT-TACKING SEWING MACHINE. Describes operation, installation of single thread butt-tacking sewing machine. The Merrow Machine Co., 28 Laurel St., Hartford, Conn.

T-314 LOOM REED BOOKLET. Describes in detail a variety of reeds. Steel Heddle Mfg. Co., 2100 West Allegheny Ave., Philadelphia 32, Pa.

T-315 COCKER EQUIPMENT. Information on warp sizer, beam warper, creels, tensions, back-winders, etc. Cocker Machine & Foundry Co., Gastonia, N. C.

T-318 FORMULAS FOR SLASHING ARNEL. Includes also information on warping, weaving and quilling. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte 1, N. C.

T-319 ECLIPSE STARCHES FOR TEXTILES. Data sheet describes use of thin-boiling starches in the textile industry, with particular emphasis on warp sizing. Physical and chemical data included. A. E. Staley Mfg. Co., Decatur, Ill.

T-321 COCKER SLASHERS. Complete specifications and advantages, including allied equipment. Cocker Machine & Foundry Co., Gastonia, N. C.

T-322 MOUNTS FOR LOOMS. Vinyl mount eliminates need for bolts or paste. Clark, Cutler, McDermott Co., 106 W. Central St., Franklin, Mass.

T-323 UNIFIL LOOM WINDER. Describes new concept of filling preparation which needs no quilling area. Leesona Corp., P. O. Box 1605, Providence, R. I.

T-324 ALIGNING LAYS. Setting instructions for step-by-step aligning. Draper Corporation, Hopedale, Mass.

T-325 TRAVELING LOOM CLEANER. Advantages of the new Oscillaire loom cleaner. Parks-Cramer Co., Fitchburg, Mass.

T-326 DRAPER REPAIR PARTS CATALOG. Contains illustrations covering all mechanisms and construction with complete listings. Draper Corporation, Hopedale, Mass.

T-327 BALING PRESSES. Describes complete line of motor-driven and hydraulic baling presses. Logemann Brothers Co., 3150 West Burleigh St., Milwaukee, Wis.

T-328 TEXTILE MACHINERY PARTS CATALOG. Describes complete line of Dayco and Thorobred textile parts. Dayton Rubber Co., Dayton, Ohio.

T-329 COUNTING DEVICES. Describes complete line of counters for every application. Trumeter Company, 38 W. 32nd St., New York 1, New York.

T-331 STATIC BARS. Humorously illustrates how static can be overcome. The Simco Co., 920 Walnut St., Lansdale, Pa.

T-332 CARE OF DRAPER SHUTTLES. Describes how longer, trouble-free service may be obtained. Draper Corporation, Hopedale, Mass.

T-336 ONE-PIECE SIZING AGENT. Houghto-Size CW provides low kettle cost, results in free-running warp of high breaking strength, increasing weaving efficiency. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

T-346 FACTS ON NON-WOVENS. Fact file on non-wovens tells of new machinery, new methods of handling fibers, new bonding agents, etc. Curlator Corporation, Textile Div., E. Rochester, N. Y.

T-347 NEW DRYING SYSTEM. Describes high capacity, custom engineered drying equipment for tufted plants. Dalton Sheet Metal Co., Inc., Dalton, Ga.

T-351 AUTOMATIC STOP MOTION. Complete information available on automatic stop motion for Titan warp tying-in machine. Edda International Corp., 468 Fourth Ave., New York 16, N. Y.

T-353 BACKING FOR TUFTEDS. How to get your tufting necessities with one telephone call. Fulton Cotton Mills, P. O. Box 1726, Atlanta 1, Ga.

T-355 NON-WOVEN FABRICS. Booklet gives outline of nature and history of non-woven and the manufacturing techniques of today. Booklet 56-219A, Chemical Div., Goodyear Tire & Rubber Co., Akron 16, Ohio.

T-358 LOOM SUPPLIES. Information on rod lubricant and applicator, sponge leather bunter, picker. Garland Mfg. Co., 54 Water St., Saco, Me.

T-362 SIZE THAT SATISFIES. Information on getting the correct size package for your mill. Also on Bingham line of slasher rolls. Stodghill & Co., 716 Ponce de Leon Place, Atlanta, Georgia.

T-363 RUBBER COVERED SLASHER ROLLS. Handy booklet tells how to get longer life and better performance from rubber covered rolls. Includes data on handling, storing and grinding. Stowe-Woodward, Inc., Dept. C., 181 Oak St., Newton Upper Falls 64, Mass.

knitting

T-401 SINGLEHEAD FULL - FASHIONED MACHINE. Literature on request from the Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-403 RASCHEL KNITTER. Describes new Raschel-type knitting machine. Kidde Textile Machinery Corp., Inc., Farrand St., Bloomfield, N. J.

T-406 NEEDLE OIL DOES NOT STAIN. Details on "Gulftex 39" developed for knitting mills. Gulf Oil Corp., Gross & PRR, Pittsburg 30, Pa.

T-407 KNITTING MACHINES. Information on Wildman "TFS" 30" single section F-F machines and "AL" 30" diameter 32-feed "single purpose" circular interlock machine (rib type) Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-409 KNIT GOODS FINISHING MACHINERY. Data on calenders, shrinkers, curers, extractors, steamers. Tubular Textile Machinery Corp., 33-61 54th St., Woodside, N. Y.

T-410 "READING" TYPE 60 F-F KNITTING MACHINE. Information about the new "Reading" Type 60, 38-section automatic full-fashioned hosiery knitting machine. Write Textile Machine Works, Reading, Pa.

wet processing

T-500 CLOTH GUIDES. Bulletin 22.1 provides application diagrams and illustrations. GPE Controls, Inc., 240 E. Ontario St., Chicago 11, Ill.

T-501 TUBES FOR PACKAGE DYEING. Describes Dytex tubes for one-time use. Sonoco Products Co., Hartsville, S. C.

T-502 FINISHING MACHINERY. Text and photographs of complete line of machinery. Marshall and Williams Corp., 46 Baker St., Providence, R. I.

T-503 WATER ANALYSIS. Includes tables, conversion factors, indicators, standard solutions. Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-504 UREA FORMALDEHYDE. Literature on urea formaldehyde or U.F. concentrate-85. Dept. CUFI-29-1, Nitrogen Div., Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-506 CATIONIC SURFACE ACTIVE AGENT. Describes Uversoft "D." Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-507 CONTINUOUS STARCH COOKER. Booklet shows how the use of continuous cookers for starch assures accurate control, economy, low maintenance in warp sizing and finishing Clinton Corn Processing Company, Clinton, Iowa.

BOOKLETS

T-508 PEROXIDE BLEACHING SYSTEM. Illustrates and describes this continuous system. E. I. du Pont de Nemours & Co., Electrochemical Dept., Wilmington, Del.

T-510 TEXTILE CHEMICALS. Describes leading products for wet processors. Royce Chemical Co., Carlton Hill, N. J.

T-512 DEPUMA. Describes odorless, viscous, non-evaporating emulsion for anti-foam. Koppers Co., Inc., Chemicals & Dyestuffs Div., Porter Bldg., Pittsburgh 19, Pa.

T-513 CATALYST AC-6. Tells how curing efficiency may be stepped up as much as 25%. Monsanto Chemical Co., Plastic Division, Springfield 2, Mass.

T-514 SODA ASH BULLETIN. Contains useful data covering this subject. Solvay Sales Division Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-516 ALUMINUM CHELATE PEA-1. Technical data sheet tells how aluminum Chelate PEA-1 may be used with advantage in many applications where aluminum is proplate is unsatisfactory. Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-517 CHEMICAL CATALOG. Lists products with chemical composition, properties and applications. Antara Chemicals Div., General Aniline & Film Corp., 435 Hudson St., New York 14, New York.

T-519 HYDRAULIC POWER UNITS. Describes unit for operating hydraulic textile machines. B. F. Perkins & Son, Inc., Holyoke, Mass.

T-522 CUT WATER TREATMENT COSTS. Describes the control of scale, slime, algae and corrosion. Oakite Products, Inc., 126C Rector St., New York 6, New York.

T-526 PRODUCTS FOR TEXTILE IMPROVEMENT. Describes products and services designed to provide better fabrics. B. F. Goodrich Chemical Co., 3135 Euclid Ave., Cleveland 15, Ohio.

T-527 SODIUM HYDROSULFITE. Literature and test samples are available on "T-C Hydro." Tennessee Corp., 617-629 Grant Bldg., Atlanta, Ga.

T-528 ETHANOLAMINES. Lists application, chemical and physical properties. Nitrogen Division, Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-531 ROTARY DYEING MACHINE For use in dyeing hosiery, hats, gloves, socks, etc. Turbo Machine Co., Lansdale, Pa.

T-534 DYEING AND FINISHING MACHINERY. Complete line presented in series of catalogs. Birch Brothers, Inc., 32 Kent St., Somerville 43, Mass.

T-535 DYEING, BLEACHING AND DRYING EQUIPMENT. Complete line for cotton, wool and synthetics described. Color pictures. Morton Machine Works, 1718 3rd Ave., Columbus, Ga.

T-536 NAPTHOL RATIOS SLIDE CHART. Quickly and accurately enables operators to determine Napthol Ratios. Alliance Color & Chemical Co., 33 Ave. P, Newark 5, New Jersey.

T-540 PENFORD FINISHING GUMS. Complete data, including physical properties. Penick & Ford Ltd., Inc., 750 Third Ave., New York 17, New York.

T-541 REGENERATION OF ZEOLITE WATER SOFTENERS. Explains advantages of Lixate Process. International Salt Co., Scranton, Pennsylvania.

T-542 DYEING SYNTHETIC FIBERS. Detailed analysis of methods and materials. General Dyestuff Co., 435 Hudson St., New York 14, New York.

T-543 INDUSTRIAL BRUSHES. Features use on shears, printing machines. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

T-544 WASTE HEAT RECOVERY. Describes system of waste heat recovery from polluted water. Ludell Mfg. Company, 5200 West State Street, Milwaukee, Wis.

T-545 WASHERS FOR SCOURING, BLEACHING, ACIDIFYING. Describes high capacity, continuous process washers. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-546 NAPHTHOL FOR LIGHTFAST BROWNS. Booklet describes new, straight, non-substantive naphthol. Naphthol As-BN, for the continuous naphtholation of cotton and rayon piece goods in the dyeing of economical, fast-to-light browns. General Dyestuff Co., 435 Hudson St., New York 14, New York.

T-547 SOFTENER LUBRICANT, NAPPING AID. Technical information available on softener, lubricant and napping aid for natural and synthetic fibers, yarns and fabrics. Nopco Chemical Co., Harrison, N. J.

T-548 HANDBOOK ON METHOCEL. Gives technical information and use data on family of methylecellulose ethers called Methocel. Organic Chemicals Sales, The Dow Chemical Co., Midland, Mich.

T-549 WALL CHARTS FOR HANDLING, TESTING H_2O_2. Two 16" x 21" wall charts available, one on handling and the other on testing H_2O_2. Becco Chemical Div., Food Machinery & Chemical Corp., Buffalo 7, N. Y.

T-550 POLYVINYL ACETATE EMULSION. Bulletin contains a description of Celanese emulsions and cites advantages of Celanese polyvinyl acetate emulsions in textile finishing. Celanese Corp. of America, Plastics Div., 744 Broad St., Newark 2, N. J.

T-554 INSTRUMENT CATALOG. Complete information on industrial instrument accessories and supplies. Includes specifications, parts numbers and prices. Catalog 500, Foxboro Co., Foxboro, Mass.

T-556 HUNTER DYEING EQUIPMENT. Describes fully with diagrams Hunter Model A Dye Becks, Hunter No/Lap Reels, Model S Dye Kettles, Open Width Dye Kettles, Sample Dye Kettles. James Hunter Machine Co., North Adams, Mass.

T-557 HIGH ACTIVITY CATALYST. Technical bulletin describes new catalyst AC-6 which provides increased activity, excellent bath life, minimum odor formation, etc. Monsanto Chemical Co., Plastics Div., Springfield, Mass.

T-558 CATIONIC DYE LEVELER. Bulletin TX-34 gives new information on dye leveler for acid colors on nylon tricot and wool through use of Nopco 1425-B. Nopco Chemical Co., Textile Chemicals Div., Harrison, N. J.

T-559 FLOW CONTROL Complete information on largest selection of values to handle flow control requirements. William Powell Co., 2525 Spring Grove Ave., Cincinnati 22, Ohio.

T-561 PUMP POURABLE PASTES. Bulletin tells how Moyno pumps can pump any textile liquid that can be forced through a pipe, even if highly viscous or corrosive. Robbins & Myers, Inc., Springfield, Ohio.

T-563 POLYETHYLENE FINISHING AGENT. Booklet contains information needed to adopt Emulsifiable A-C polyethylene as a finishing agent to any particular process. Semet-Solvay Petrochemical Div., Allied Chemical Corp., 5th Floor T, Rector Street, New York 6, N. Y.

T-564 HYDROGEN PEROXIDE BLEACHING. Booklet discusses advantages, operating details and savings in chemical costs of Activated Hydrogen Peroxide Bleaching Process for Cotton Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-566 ETHYLEX GUMS. Brochure describes properties of hydroxy ethyl ether derivatives of corn starch. Applications of these noncongealing gums in warp sizing and finishing covered. A. E. Staley Mfg. Co., Box 151 Decatur, Ill.

T-570 CARPET DRYERS. Details, pictures, drawings on driven roll, conveyor, and tenter types. Andrews and Goodrich Div., 336 Adams St., Boston Dorchester, Mass.

T-572 DYEING MACHINERY FOR EVERY PURPOSE. Illustrated literature available on complete line of automatically controlled machinery. Gaston County Dyeing Machine Co., Stanley, N. C.

T-576 YARN PREPARATION. Describes products for yarn preparation, printing, finishing. Polymer Industries, Springdale, Conn.

T-577 STAINLESS DRY CANS. Information on stainless steel, 75 psi, reverse dished, head dry cans. Can be furnished Teflon-coated if desired. Sims Metal Works, West Point, Ga.

T-579 AUTOMATIC GUIDING EQUIPMENT. Catalog shows various types of automatic guiding equipment for accurate cloth guiding. Fife Mfg. Co., Inc., P. O. Box 9815, Oklahoma City, Okla.

fibers and yarns

T-601 FORTISAN-36, NEW TEXTILE FIBER. Includes charts, diagrams, text, presents technical properties. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte, N. C.

T-602 CAPROLAN NYLON HEAVY YARNS. Describes strength, long flex life and ready dyeability. Fiber Sales Dept., National Aniline Div., 261 Madison Ave., New York 16, N. Y.

T-603 RAYON—MILE BY MILE. Details on how rayon is produced mile by mile, perfect inch by inch. Industrial Rayon Corp., 500 Fifth Avenue, New York 18, N. Y.

T-604 THE CHEMSTRAND NYLON Story. Describes the birth and growth of Chemstrand Nylon. Chemstrand Corp., 350 Fifth Ave., New York 1, N. Y.

T-605 COLOR-FAST FIBERS. Further information on "Coloray," Courtauld's solution dyed rayon staple which is a contribution to color fastness in fabrics. Courtaulds (Alabama) Inc., 600 Fifth Ave., New York 20, N. Y.

T-606 "DIAL-A-FIBER" Ingenious circular chart indicates properties and compatabilities of "Uvitex" for application on natural and synthetic fibers. Ciba Co., Inc., Route 208, Fair Lawn. New Jersey.

T-607 THE STORY ON LUREX. Information on metallic yarns and how they are developed to broaden the scope of the weaving, knitting, braiding, tufting, embroidery, lace, quilting and wet processing industries. Specify interest. Textile Fibers Department, Product Information Service, The Dow Chemical Company, Williamsburg, Virginia.

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BOOKLETS

T-608 TASLAN TEXTURED YARNS. Technical information on dyeing and finishing of new fabrics made with Taslan. E. I. du Pont de Nemours & Co., Wilmington 98, Delaware.

T-609 PROCESSING NYLON STAPLE. Data sheet describes method of processing Du Pont 42 Nylon Staple in blends with cotton. Covers complete operation through sizing. Bulletin N-93. E. I. du Pont de Nemours & Co., Inc. Wilmington, Del.

laboratory

T-701 TESTING INSTRUMENTS. Descriptions of 37 instruments for testing textiles. Custom Scientific Instruments, Inc., 541 Devon St., Kearny, N. J.

T-703 SHADOGRAPH WEIGHING DEVICES. Pictures and information on various types of scales. Exact Weight Scale Co., Columbus 8, Ohio.

T-705 STROBOTAC. Measures speed of rotating, reciprocating or other cyclic motions. General Radio Co., West Concord, Mass.

T-706 YARN COUNT SCALE. Data sheet tells how direct-reading instrument provides fast, accurate method of determining yarn number. Exact Weight Scale Co., Columbus 8, Ohio.

T-712 AUTOMATIC MOISTURE CONTROL. Booklet tells how Hunter Electro-Psychrometers are used in measuring percentage of moisture in all classes of textiles, whether yarns or fabrics. Hunter Controls, Inc., Div., James Hunter Machine Co., North Adams, Mass.

services for management

T-801 FACTORING SERVICE. Details on advantages of factoring, including information on general banking and pension plans. Trust Company of Georgia, Atlanta, Ga.

T-802 NON-WOVEN FABRICS. Report includes how non-woven fabrics are made, machinery involved, sample fabrics. Textile Fibers Dept., E. J. du-Pont de Nemours & Co., Inc., Wilmington 98, Del.

T-805 PROFIT THROUGH FACTORING. Brochure gives facts on the use of factoring as a modern plan for developing sound business growth and added profits. Walter E. Heller & Co., Dept. T1-2, 105 W. Adams St., Chicago 99, Ill.

T-807 GROUP INSURANCE. Information on how textile group insurance can insure the happiness of your employees and make for a better running mill. Provident Life and Accident Insurance Co., Group Dept., Chattanooga, Tenn.

T-808 FACTORING. Complete details on services offered as mill factors. L. F. Dommerich, 271 Madison Ave., New York, N. Y.

T-810 THE WONALANCET WAY is the title of an editorial booklet published five times a year dealing with current problems. Write Wonalancet Company, 128 Burke St., Nashua, N. H.

T-812 BEECHCRAFTS AT WORK. Booklet available from Southern Airways Company shows how Beechcraft executive airplanes can save executives time and money. Write Southern Airways Co., P. O. Box 718, Atlanta, Ga.

T-819 ORGANIZED LUBRICATION PAYS. Planning book entitled "Management Practices that Control Costs via Organized Lubrication" shows how to effect savings in five areas of plant operation. Available from Texaco, Inc., 135 E. 42nd St., New York 17, N. Y.

T-821 INVENTORY CONTROL. How a daily report of inventory condition mechanically produced on existing business machines showed a net direct payroll saving of more than 10,000 a year. Administrative Methods Dept., Werner Textile Consultants, 1430 Broadway, New York, N. Y.

plant operation

T-902 BELT LACING EQUIPMENT. Includes prices, specifications, etc. Clipper Belt Lacer Co., Grand Rapids, Michigan.

T-903 "MOTOR SELECTOR." How to select a-c motors for specific application. Bulletin B-2103. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

T-904 GEARMOTORS, MOTORGEARS, AND FLUID DRIVES. Catalog supplies complete information on double, triple, and quardruple reduction gearmotors and motorgears. Electrofluid and fluid drives are also explained. Link-Belt Company, Dept. PR, Prudential Plaza, Chicago 1, Illinois.

T-907 WRAP UP LINT PROBLEMS. Automatic lint filter removes lint from air, winds it into disposable roll. Bulletin 234, American Air Filter Co., 275 Central Ave., Louisville 8, Ky.

T-908 TEXTILE MOTORS. Bulletin describes compete line of textile motors. Diehl Mfg. Co., Finderne Plant, Somerville, N. J.

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Management and operating executives of textile manufacturing plants should make it a habit to read the Executive Section in each regular issue of "Textile Industries." It contains

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LABOR-MANAGEMENT NEWS
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108

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A completely new, 20 page illustrated catalog-manual showing all the models of Deublin Rotating Unions for water, steam, air, hydraulic, vacuum and coolant service for the machines you make or use, is just off the press to help you get trouble-free service and reduce your "down-time" and keep maintenance to a minimum. Shown are rotating joints for water and steam service; monoflow and duoflow unions; single and double passage rotating air unions; hi-pressure lo-torque unions; extra capacity air unions; rotating siphon pipe unions; in-the-shaft mounted unions; hydraulic rotating unions and hi-speed coolant unions. Complete with full engineering data, cut-away drawings, plus instructions for installing, lubricating and servicing Deublin unions.

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4

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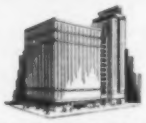

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Guest Rooms • 600

DINKLER—TUTWILER
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Meetings • 25 to 1800
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DINKLER—JEFFERSON DAVIS
MONTGOMERY, ALA.
Meetings • 15 to 350
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DINKLER—ANDREW JACKSON
NASHVILLE, TENN.
Meetings • 40 to 400
Banquets • to 350
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Carling Dinkler, Jr., V. P. and Gen. Mgr.

DINKLER HOTELS

MILL NOTES

Willimantic (Conn.) Mills of **The American Thread Co., Inc.,** has completed installation of vacuum scavenger units on 122 frames in the cotton spinning department.

Domestic Lace Manufacturing, Inc., Englewood, N. J., has developed a mesh-type warp knit fabric called "Health Mesh." Designed for men's summer athletic shirts, briefs, and sportswear, the cloth permits a high degree of air circulation.

Headquarters for the newly created fabricating division of **Riegel Textile Corp.** have been established in Johnston, S. C.

West Point (Ga.) Manufacturing Co. has acquired the land and buildings in Newnan, Ga., formerly owned by Mount Vernon Mills, Inc. Machinery from other mills will be transferred to the Newnan plant where manufacture of yarns for use in West Point plants will begin this summer.

Famous Knitting Mills, New York City, has expanded production space and has added eight circular knitting machines and more sewing equipment.

Installation of new machines for converting tow to staple and winding and overhead cleaning equipment has been completed at **Delaine Worsted Mills, Inc.,** Gastonia, N. C., at a cost of more than $40,000.

Ginny Lynn Mills, Inc., Graham, N. C., has leased the building in Hartsville, S. C., formerly occupied by Butler Hosiery Mills. Approximately 50 people will be employed when the plant gets into full production. J. D. Wright is plant manager.

The Rock Hill (S. C.) Printing & Finishing Co. has replaced its electronic data processing equipment which would print up to 100 lines a minute with new machinery that will print up to 600 lines a minute. The equipment will expedite handling of inventories, billing, sales and cost analysis, and production reports.

Joanna (S. C.) Cotton Mills recently installed six more combers which brings the total to nine combers now in use on American cotton. 600 looms are running on American cotton, mostly broadcloth, which is used extensively in men's shirts.

A new company, **Norlyn Knitting Mills,** headed by Abraham M. Kopeika, has leased the one-story plant at 16 Warrick Ave., Glassboro, N. J., for the manufacture of men's, women's, and children's sweaters.

The 23,000 sq ft addition to the finishing plant of the Duke division of **Kayser-Roth Hosiery Co., Inc.,** Hickory, N. C., is nearing completion.

Princeton Knitting Mills, a subsidiary of Burlington Industries, Inc., has purchased 220,000 sq ft of space in the former Waterville, Conn., plant of Scovill Manufacturing Co., for the manufacture of pillows and bedspreads and for expansion of production of floor covering.

Callaway Mills Co., LaGrange, Ga., was host recently to fourteen students and four faculty members of the Institute of Textile Technology, Charlottesville, Va.

Collins & Aikman Corp., Albemarle, N. C., is producing "Trilok" under license from the U. S. Rubber Co. The three-dimensional fabric is woven on regular looms with polyethylene yarn and conventional textile fibers for automobile upholstery.

Home-owning employees, with the exception of supervisors, are eligible to compete in the "home improve-

ment" contest being sponsored by **Avondale Mills,** Sylacauga, Ala. Approximately $2,000 in prizes will be awarded for improvements to the exterior appearance of houses and yards during the period from January 1 to August 31.

Carolina Mills, Inc., has announced plans to transfer the standards and controls office and central control laboratory now located in Newton, N. C., to the building soon to be vacated by Southland Fabrics in Maiden, N. C. Plans call for a pilot production unit at the Maiden location to be used in conjunction with the central control laboratory in making special sample lots of fiber blends not in normal production.

Brady Manufacturing Co., Inc., Coleridge, N. C., has announced the acquisition of **Kalmia Braids, Inc.,** Spruce Pine, N. C. The latter has been designated the Shoe Lace Division of the parent firm, and will continue the manufacture of shoe laces.

Penn-Carol Hosiery Mill, Mt. Pleasant, N. C., has announced an expansion program which will increase the size of the plant by 40 per cent and employment by 50 per cent over a two-year period.

A new firm, **Randolph Yarns, Inc.,** has been established for the operation of two of the LaFar group of mills in the Carolinas — **Farmac Mills, Inc.,** Rock Hill, S. C., and **Harden Mfg. Co.,** Hardins, N. C. Production will include tow-dyed, skein dyed, and natural yarns of man-made fibers, including textured yarns. President of Randolph Yarns is D. R. LaFar, head of the LaFar chain of mills; vice-president is Thomas Urmston who is also president of Randolph Mills Corp. of New York.

A modernization program at **Beaumont Mills,** Spartanburg, S. C., has been completed at a cost of more than $100 thousand dollars. Filling winders have been installed on 120 looms; a wide shearing line and a wide folder have been installed in the cloth room. Five new slashers and new quilling equipment have replaced the older machines.

A new rayon blending line is being installed at **Hyde Park Mills, Inc.,** Covington, Tenn., for blending cotton and rayon.

Cherry Knitting Mills, Philadelphia, Pa., formerly located at 2712 North Hope Street, has moved into new and larger quarters at 426 East Allegheny Ave.

Anglo Fabrics, Inc., has purchased **Oxford (Mass.) Woolen Mills.** According to a company spokesman, fancy worsted and woolen fabrics for the French River Mills subsidiary will probably be made in the newly acquired plant.

Gloversville (N. Y.) Knitting Co. and **Continental Mills,** Philadelphia, have consolidated. The resulting corporation will be known as **Gloversville-Continental Mills, Inc.** All fabric manufacturing will be done at the main Gloversville plant under the direction of Millard L. Brown of Continental, and knit wool glove operations will be in the Schenectady, N. Y., glove plant where Albert J. Hellwig is manager. Manufacturing and merchandising policies will be unchanged, but a general reorganization of both companies is expected.

Merrimack Manufacturing Co. (1959), Inc., Lowell, Mass., formerly a sales agent for the now-defunct Merrimack Manufacturing Co., is producing velveteens.

NON-FLUID OIL
TRADE MARK REGISTERED

Ordinary oil drips out, stains yarn
NON-FLUID OIL stays where applied

When used on spinning frames NON-FLUID OIL stays on the necks of rolls, top rolls, cylinder bearings and saddles of top rolls until entirely used up. It reduces wear caused by friction. Power is conserved. Bearings last longer—**they run practically without vibration.**

NON-FLUID OIL does not spread to the face of the rolls or drip from roll necks as ordinary oils do. Top roll damage and oil-stained yarn are avoided. And the savings on lubricant and application cost, power and repair, which result, many times offset the entire cost of NON-FLUID OIL.
Write for test samples and NON-FLUID OIL Bulletin T-13.

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***NON-FLUID OIL* is not the name of a general class of lubricants, but is a specific product of our manufacture. So-called grease imitations of *NON-FLUID OIL* often prove dangerous and costly to use.**

SUPPLIER NOTES

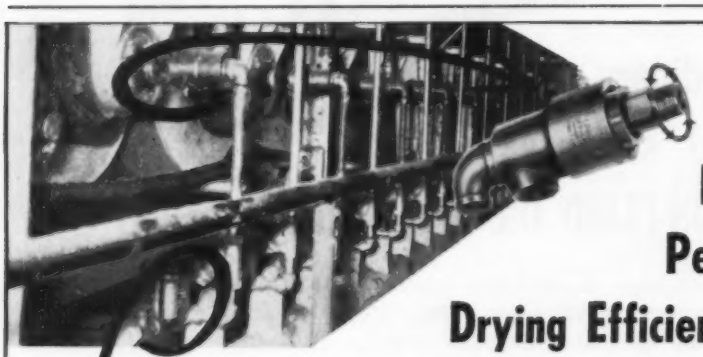
Frederick E. Anderson has joined the Fibers Division of **American Cyanamid Company** as group leader for yarn and fabric development.

At the annual meeting of the **American Textile Machinery Association** held in Boston, Mass., recently, J. H. Bolton, Jr., of Whitin Machine Works, was elected vice-president of the Association to succeed Robert Leeson, of Leesona Corp. The following officers were re-elected: president—William K. Child of Draper Corp.; treasurer—F. Gorham Brigham, Jr., of Saco-Lowell Shops.

Edwin L. Marston has been promoted to New York district sales manager of the Fiber Division of **American Viscose Corp.**, succeeding the late Louis A. Welch.

M. L. Fillippeli, Sr., has joined the sales staff of **Apex Chemical Co.** Mr. Fiilippeli will service Apex customers in the south from his Greensboro, N. C., headquarters.

E. J. Stelpstra has joined the sales division of **The Arkansas Company, Inc.** Mr. Stelpstra, who was formerly a wet processing plant operating executive, has headquarters in Macon, Ga., and represents Arkansas Co. in Tennessee, Alabama, and Georgia.

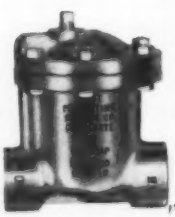


For Peak Drying Efficiency

The combination delivers a steady flow of hot dry steam to all types of textile dry cans. It assures much faster warm-up, requires no adjustments, and materially reduces downtime.

Syphon Type ROTARY UNION* (above)

A self-aligning and self-adjusting precision mechanical seal which maintains a leakproof connection without mechanical maintenance. Unique syphon support prevents loosening, breaking, or falling off of syphon pipe.



Model 70T UNITRAP* (left)

An inexpensive bucket-type steam trap with a universal pressure range from 0 to 125 lbs. and a capacity up to 1000 lbs. per hour. Stainless steel working parts assure long and trouble free service.

Write for Bulletin 700T and 825T

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PERFECTING SERVICE COMPANY, 332 Atando Ave., Charlotte, N.C.

Baltimore—Buffalo—Camden, N. J.—Chicago—Cleveland—Los Angeles

New York—Providence—Montreal—Toronto

Hurley & Harrison, Geenville, S. C., has been appointed to handle the entire line of products of **Benjamin Booth Co.** in the Carolinas and Virginia, including card clothing, condenser tapes, and spinning bands.

Election of Theodore M. Dillaway as vice-president and George P. Schivley as vice-president of manufacturing has been announced by **Buffalo Forge Co.**

S. J. Capelin Associates, Inc., has named Sanford E. Rafsky to the newly created post of executive vice-president. He will be in charge of all American engineering and management functions for the firm.

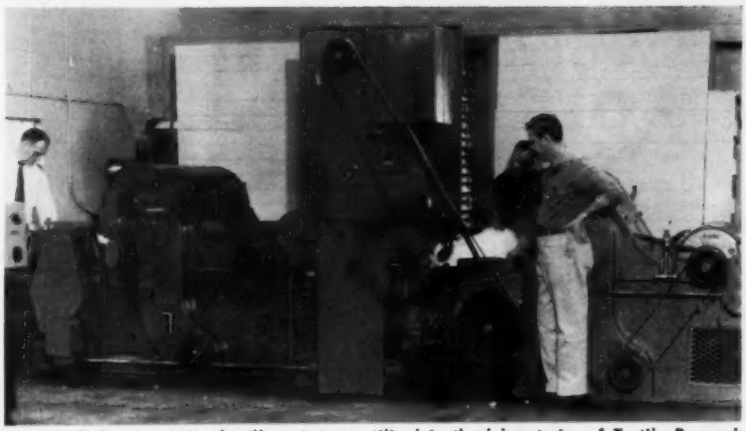
The Chemstrand Corp. has announced a multimillion dollar expansion program which will increase by more than 50 per cent its capacity for production of nylon 66 tire and carpet yarns and yarns for industrial uses. * * * In the applications research and service department at Decatur, Ala., Lamar Beach, formerly fiber quality superintendent for the Acrilan plant, has been reassigned and promoted to manager of Acrilan technical sales service. William R. Martin has been promoted to manager of textile processing. Walter Stump has been named superintendent of dyeing and finishing service. S. Jack Davis has assumed duties as manager of fiber research laboratories. * * * E. J. Gilliland has been promoted to manager of nylon technical sales service at the Pensacola, Fla., division.

J. H. Elsinger has been appointed district manager of a new sales district of **Signode Steel Strapping Co.** with headquarters in Jacksonville,

Mr. Elsinger

Fla. The area to be covered by the new district is made up of Florida and the southeast portions of Georgia and South Carolina.

Courtaulds (Ala.) Inc. has appointed J. Dwight Bell, Jr., sales representative for parts of North Carolina, Georgia, Alabama, and the deep south, succeeding J. E. Brown, Jr., who resigned. Mr. Bell



Typical of the conventional mill equipment utilized in the laboratories of Textile Research Services, Inc., is this single-process picker.

will work out of the Greensboro, N. C., offices of Courtaulds. He was formerly associated with Avondale Mills.

C. E. Hett, Jr., has joined the repair sales division of **Whitin Machine Works.** Mr. Hett, formerly of Columbus, Ga., is headquartered in Charlotte, N. C., and will call on mills in the south. * * * R. C. (Jack) Petty, southern supervisor of erectors, has retired. * * * Orders have been received from Union Buffalo (S.C.) Mills for four Axi-Flo Model B cleaners. Carleton Woolen Mills, Inc., Rochdale Mass., has purchased four wool blending bale breakers, four 3-cylinder sets of Model M woolen cards, four breaker cards, four intermediate card feeders, four finisher cards, and twelve Model E3 wool spinning frames (216 spindles each). William Heller, Inc., Woonsocket, R. I., has ordered 5 spinning frames (240 spindles each), and Erlanger Mills, Inc., Lexington, N. C., has ordered five Model J6 combers and eight deliveries of Even Draft drawing.

Willcox & Gibbs Sewing Machine Co. has named Howard Townsend technical sales representative for New Jersey, to replace George Ganski who has been appointed sales representative for the Brooklyn territory, succeeding Joseph Kennedy who has retired. Russell Weston has been promoted to manager of the Boston office. Robert Renna and Clarence Nichols have been named to the Philadelphia and Eastern North Carolina areas, respectively.

Textile Research Services, Inc., was recently established to provide services in research and development of textiles and to evaluate physical properties of textile materials to determine their acceptability for the intended use. According to G. Dent Mangum, president and treasurer of the Raleigh, N. C., firm, the company provides textile processing facilities and testing laboratories for evaluation of experimental and semi-commercial textile fibers, using production-type machinery and modern techniques, and offers these services to chemical fiber producers, textile mills, textile auxiliary manufacturers, and allied textile interests. The company's laboratories, located at 1501 S. Blount St., are staffed and equipped to conduct processing tests from staple fiber to fabric on both cotton and worsted systems of manufacturing. Vernon W. Hill is vice-president and secretary.

Thomas F. Crotan has been appointed sales engineer and service manager of the new southeast division factory branch of **Darnell Corporation, Ltd.,** which is located at 1000 Peachtree St., N. E., Atlanta, Ga.

A new multi-million dollar plant will be constructed at the James River division of The **Dow Chemical Company** for the manufacture of nylon 6. The plant will have an initial capacity of 12 million pounds per year of filament yarn primarily for use in tire manufacturing. Plans call for a late 1961 completion. * * * D. Jack Davis has been appointed area manager for market research in New York.

Marcus D. Haney has been named assistant manager of the southern district office of the Dyes and Chemicals Division of **E. I. du Pont**

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BLACK

Black . . . always the ultimate in style and practicability. And to be sure you choose the right black for dyeing nylon, silk and wool, specify LOGWOOD blacks. Check these outstanding performance advantages:

★ **TRUE BLACK SHADE**

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The West Indies Chemical Works, Ltd.
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SUPPLIER NOTES

(from page 231)

Mr. Morton
Althouse

Mr. Phillips
Trust Co. of Ga.

Mr. Drummond
Franklin Process

Mr. Brice
Goodyear

de Nemours & Co., Inc. In his new position, Mr. Haney will supervise all southern district sales and technical service on products other than dyes. Dye sales remain under the direction of H. H. Field and W. F. Crayton, assistant managers of the dyes sections of the district office. Other changes in the southern district, which embraces offices in Charlotte and Atlanta, include the following named to the positions indicated: Atlanta—J. J. Barnhardt, Jr., sales and technical supervisor for dyes; J. H. Stradley, technical consultant, dyes. Charlotte—J. V. Killheffer, technical supervisor, dyes; N. R. Vieira, technical consultant, dyes. * * * J. M. Remsen has been named technical supervisor, in addition to his present duties as sales supervisor, in the division's Chicago district office. * * * In the New England district office, J. W. Killheffer has been appointed technical supervisor, and E. H. Gamble has been named technical consultant. * * * In the Philadelphia district office, S. H. Loper has been named technical supervisor; P. L. Speakman, technical consultant, and R. L. Riley, office supervisor. * * * New York district office changes include appointment of B. F. Quigley as technical supervisor.

Ken Ferguson has been named to represent **Eastman Machine Co.** in northern California and Utah, and Campbell Sewing Machine Co. will represent the company in the states of Washington and Oregon.

A high pressure and high temperature research dye unit is being installed in the applications research laboratory of **Althouse Chemical Co.** to enable research department to duplicate the same high temperature dyeing conditions found in dyeing and finishing plants. * * * W. J. Morton has joined the sales force of the North Carolina and Virginia area with headquarters in Greensboro, N. C. He was previously associated with Burlington Industries.

R. H. Phillips has been named a vice-president of **The Trust Company of Georgia.** Mr. Phillips is in the factoring department, which deals extensively in textile financing.

Donald C. Oskin has been named to the newly created position of vice-president of executive sales of the chemical division of **Food Machinery and Chemical Corp.** At the same time Mr. Oskin was appointed a member of the chemical division's executive committee.

Franklin Process Company, a division of Indian Head Mills, Inc., has named Byron Drummond to cover metropolitan New York and Brooklyn, replacing Arnold Dana, who has resigned.

The Chicago regional sales office of **Fulton Cotton Mills,** Atlanta, Ga., has been moved to new and larger quarters located at 6444 North Central Ave. R. E. Akins and G. R. Cross head the staff. * * * L. O. Harris, Jr., has been promoted to vice-president of sales, and B. P. (Phil) Barnet has been named manager of the laminated products division.

J. S. Brice has been promoted to district manager of the southeastern district of **Goodyear Tire & Rubber Company's** Chemical Division, with headquarters in Atlanta, Ga.

Sonoco Products Co. has announced the acquisition of the Newton Paper Co., Holyoke, Mass. The latter company will continue to operate under the same name as a subsidiary of Sonoco. Plans call for expansion of present facilities and for converting machinery to produce products used by the parent firm.

H. E. Runge, chief executive officer of **Southeastern Loom & Machine Works,** has announced the conclusion of an agreement whereby the **Louis P. Batson Co.** will act as selling agent for Southeastern in the sale of textile and foundry parts. In his statement, however, Mr. Runge pointed out that Batson will not act as selling agent for the new Maxbo loom or for any parts or assemblies for this loom. The selling agent for the Maxbo loom is Edda International Corp., as was announced earlier. Southeastern is equipped with complete foundry facilities and is engaged in the manufacture of looms, loom parts, card coilers and

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MEADOWS
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EXCELS!
McDONOUGH

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McDonough, Georgia, U.S.A.

drawing frame changeovers, spinning frame pulley spindle drives, individual card drives, centrifugal and gear size pumps, hydraulic presses, and special machinery for the textile industry.

The A. E. Staley Manufacturing Co. has made a contract distributorship agreement with Pfanstiehl Laboratories, Inc., of Waukegan, Ill., for marketing "Seqlene" sequestrants. These products are sodium salts of closely related sugar acids and are used in textile processing.

A yarn sales department has been formed by **J. P. Stevens & Co., Inc.** Joe H. Christian is in charge of the northern sales offices, located as follows: 99 Chauncey St., Boston, Mass.; 1460 Broadway, New York, N. Y.; 12 South Twelfth St., Philadelphia, Pa. Salesmen in the various offices are David Fox and Bob Mathieu in Boston; John Buscher, Jack Kemp, and Dan Libby, New York; and Dave Morgan in Philadelphia. Louis Cramer will continue to be responsible for the southern sales operations, with representatives in Greenville, S. C., and Charlotte and Greensboro, N. C. The entire yarn sales operation will continue under the general supervision of Wallace M. Sutton.

A new firm, **Talcott Leasing Corporation,** has been formed by **James Talcott, Inc.** The wholly owned subsidiary of the parent firm will lease new heavy industrial and commercial equipment directly to business concerns. Headed by John Duncan, the firm is located at 229 Park Avenue South, New York, N. Y.

Gerald G. Cathcart has been appointed general sales and advertising manager of **Progressive Engineering, Inc.** Mr. Cathcart was formerly associated with the Canadian sales agent for Progressive.

Jack Moss, formerly a wet processing plant operating executive, has joined the **Putnam Chemical Corp.** as technical sales representative assigned to the New England territory.

W. L. Parcell has been elected executive vice-president of **The Ridge Tool Co.** At the same time R. D. Fye was named sales manager and H. L. Palmer was appointed advertising manager and assistant sales manager.

The New England and Canadian

"Styles change fast, so we move fast, via Delta Air Freight!"

Florida Fashions Co. (Orlando, Florida) keeps abreast of style changes by supplying its faraway outlets on a 24-hour basis and avoids overstocking.

"Even the sudden exit of the sack dress didn't catch us overstocked," reports M. C. Albrecht, Vice President Operations, "we use Delta Air Freight five days a week to meet the demand for new styles, so we don't have to risk carrying large inventories. We have expanded our marketing area, too, competing in places accessible to us *only* by Delta Air Freight."

Profit from Delta's BIG PLUS

Delta operates all-cargo flights and in addition carries freight on every passenger flight, including Jets. All-cargo flights serve Atlanta • Chicago • Cincinnati • Charlotte Dallas • Houston • Miami • New York • New Orleans • Orlando Philadelphia • Tampa • Memphis

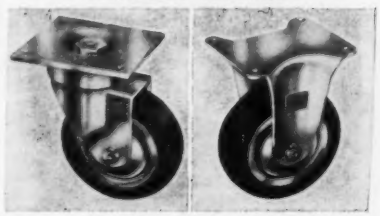
Delta AIR LINES AIR FREIGHT DOOR-TO-DOOR

GENERAL OFFICES: ATLANTA AIRPORT, ATLANTA, GA.

Your budget never had it so good

NEW! 90 Series DARNELL

COMPETITIVELY PRICED CASTERS



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CAN SAVE YOU . . .
MONEY!

ANDERSON
SHIELDS

will reduce . . .
CHIPPING — SPLITTING
BREAKING
of your . . .
SPOOLS AND BOBBINS

Send Us Your Problems:
We Will Cooperate
— To Save You Money.

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Textile Mills & Finishing Plants
Water Supply
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Pulp & Paper Mills
Surveys & Reports

GREENVILLE,
SOUTH CAROLINA

SUPPLIER NOTES

(from page 233)

sales offices of the Textile Machinery Division of **Saco-Lowell Shops** has moved from Boston to Saco, Maine. G. Fulton Wilcox is regional sales manager, and William R. Wood is the Canadian sales manager. Batey H. Kennedy, formerly attached to the Charlotte, N. C., district sales office, has joined the new regional sales office as sales engineer. Arthur E. Dubois, Jr., is regional service manager, and Hilton Hall and Shirley Parks are regional service engineers.

A. Monforts Maschinenfabrik, the German manufacturer of dry finishing and wet processing machinery for fabrics of all types, has announced the appointment of **Industrial Equipment Co.,** 812 Johnston Bldg., Charlotte 2, N. C. as U. S. A. representative for the firm.

At the annual stockholders meeting of **Atlantic Steel Company** held in Atlanta, Ga., recently, R. E. O'Neill was named vice-president of sales.

The Durene Association of America has announced the election of **Boger & Crawford** to membership in the organization which consists of manufacturers of mercerized cotton yarns.

Lewis O. Crawford, Jr., has been elected vice-president in charge of sales of **R. H. Bouligny Co.**

John G. Nissl, New York sales manager for **Carbic-Hoechst Corp.** has retired.

Celanese Corp. of America has acquired from The B. F. Goodrich Co. the patents, trademark, technical know-how, and world rights to produce and market Darvan nytril fiber. The acquisition, according to a company spokesman, will substantially expand markets for Celanese chemical products and further diversify the company's line of contemporary fibers.* * * Randolph J. Jewell, formerly Charlotte, N. C., district sales manager, has been named manager of sales development. L. G. Lovin, Jr., formerly assistant manager of acetate and Arnel filament yarns, has become manager; C. R. Blossom has been promoted from assistant manager to manager of rayon and Fortisan filament yarns; T. R. Brown, formerly in sales development, has been appointed assistant manager of staple fiber and tow sales; Quinton Florence, a salesman in the southern district, has assumed his duties as sales manager of southern district sales.

Walter E. Anderson has been appointed sales engineer of **Scott Testers, Inc.,** with responsibility for sales of testing equipment throughout the U. S. Mr. Anderson was previously associated with Thomas & Betts Co. and Minnesota Mining & Mfg. Co.

Sanford L. Cluett, the inventor of the compressive shrinking process which produces "Sanforized" fabrics, and a vice-president of **Cluett, Peabody & Co., Inc.,** was recently honored by the firm through a $55,000 gift to the Rensselaer Polytechnic Institute Science Center and establishment of an annual scholarship in his name.

Clinton Corn Processing Co., a division of Standard Brands, Inc., has announced the promotion of Harold A. Bendixen to the position of senior vice-president. Alfred C. Junge has been named to succeed Mr. Bendixen as vice-president of sales.

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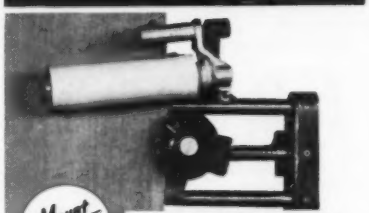
WATCHDOGS
of Misalignment . . .



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Mr. Carpenter
Polymer Industries

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Klauder Weldon Giles

Mr. Gerrow
International Latex

Mr. Reckard
Horace T. Potts

U. S. Industrial Chemical Co. has announced semi-commercial production of the new product trademarked "Microthene," at their plant in Tuscola, Ill. Among the many uses seen for the finely divided polyethylene are coatings for all types of textiles (including nonwovens), binders for nonwoven fabrics, and stiffening agents for specialized textiles.

William F. Gerrow, Jr., formerly laboratory manager of Fulton Cotton Mills, has been appointed regional sales manager for the southern area of **International Latex Corp.** Mr. Gerrow will establish sales offices in Atlanta, Ga.

At a recent meeting of the board of directors of **The Klauder Weldon Giles Machine Co.,** new officers were elected as follows: president—John M. Giles; vice-president, secretary, and general manager—Thomas Bell; vice-president in charge of sales—Robert M. Bell; vice-president in charge of purchases—Frederick T. Bell; treasurer—Doris L. Giles.

Anton Viditz-Ward has been named technical service specialist for textile dyes in the **National Aniline Division** of Allied Chemical Corp. Formerly an executive with a number of mills, Mr. Ward will operate out of the technical service headquarters in Buffalo, N. Y.

The **National Vulcanized Fibre Co.** has elected Henry C. Guhl vice-president for engineering.

Polymer Southern, a division of **Polymer Industries, Inc.,** has announced that Jack B. Carpenter, Jr., has joined the company as technical sales representative in the states of Virginia and North Carolina. Formerly with Burlington Industries, Mr. Carpenter resides in Greensboro, N. C., but his headquarters are at Polymer Southern's office in Greenville, S. C.

Horace T. Potts Co. has announced the following executive appointments: Donald C. Taylor, former manager of the Baltimore warehouse, has been named assistant to the president, responsible for research and development; John W. Reckard, general sales manager, is now vice-president in charge of all company sales and manufacturing operations; John A. Stringer, former company comptroller, has been appointed vice-president responsible for financial and purchasing functions; William C. Spencer, Jr., secretary, has been appointed director of purchases; George A. Parker, Jr., has been named sales manager. Mr. Parker was formerly manager of stainless sales, which position will now be handled by Horace T. Potts, III.

The Industrial Roll Division of the **Rodney Hunt Machine Co.** has been appointed as exclusive U. S. agents for David Bentley, Ltd., of Manchester, England, manufacturers of all kinds of filled calender rolls for friction calendering, schreiner calendering, and embossing.

Fletcher Southern, Inc., southern agency for **Fletcher Works,** has announced the opening of a new addition which doubles the size of its Southern Pines, N. C., plant. The new, fully air conditioned plant with offices for sales and manufacturing houses a machine shop and assembly floor for looms and twisters.

G. M. Phoenix has been promoted to branch manager of the Needham, Mass., office of **Warner & Swasey Co.,** and R. O. Perrault has been advanced to branch manager of the Middle Atlantic states. Mr. Perrault will continue to be headquartered in the Ardmore, Pa., office.

Robert O. Ness has been appointed sales representative for the chemical division of **General Mills.** Mr. Ness has been assigned to the Kankakee, Ill., district office and is responsible for sales in the Iowa and northern Illinois area.

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Wool-rayon-nylon blended serge best substitute for all-wool, study shows

■ BECAUSE wool still is considered a potentially critical material in times of national emergency, a study to develop alternates for 18-oz all-wool worsted serge has been conducted jointly by the Quartermaster Corps and Air Force and a report* of the investigation published.

Twenty experimental fabrics were made and their properties evaluated, in comparison with those of the standard serge (MIL-C-823B, Type I, Class 1), at the Quartermaster Research and Engineering Center, Natick, Mass. Of the fabrics studied, a ternary blend of 70% wool, 20% viscose, and 10% nylon is indicated as providing the closest approach to the wool serge.

The main emphasis of the study was on blends of wool with other fibers, the report stated, but two other approaches were explored:

1. The substitution of the standard 60s wool by a coarser grade, 56s, which would broaden the supply of wool available from domestic sources, and

2. Variations in fabric structure to increase the useful life of the fabric and further contribute to the conservation of wool in time of war.

Following are the recommendations contained in the report.

Weave. The Mayo twill and the satin fabrics are appreciably different in hand and appearance from the standard 2/2 twill. They are appreciably limper and less wind resistant than the standard, and, used warp-flush, are predicted to have a low resistance to wear. They may be excluded from further consideration.

The crowfoot differs little from the twill in either appearance or measurable properties; no advantage from its use is readily apparent.

The gabardine is similar to the twill in its appearance and durability characteristics, but appears to offer some advantage in wearer comfort by virtue of its greater softness and lower bending stiffness; it is recommended for further study in compositions other than the 70/30 wool/viscose blend here evaluated.

Wool grade. The 18-oz serge made from 56s wool differs little from that composed of the standard 60s in functional properties, but has a slightly harsher hand. It seems likely that an appreciable dilution of the 60s by the coarser wool can be accomplished before even the effect on hand becomes apparent to anyone except an expert. The use of 56s wool, as a substituent or diluent, for broadening the base of the wool supply appears a useful approach.

Viscose rayon. The introduction of viscose rayon causes lowering in the resistance to wetting, and a greater ease of ignition on exposure of the fabric to flame. With 30% viscose (but not 15%), the fabric is also somewhat leaner and harsher than the standard. It is considered that 15% of viscose may be incorporated in the fabric with only a slight loss in functional properties; at the 30% level, this loss is becoming noticeable.

There is little to be gained from increasing the denier of viscose from 3 to 5½ in blending with 56s wool.

The utilization of viscose (20%) in a ternary blend with wool (70%) and nylon (10%) appears to have merit. The fabric has the ready liquid moisture adsorption characteristic of the viscose blends, but in terms of other comfort and appearance factors, and in durability, it behaves like an all-wool or wool-nylon structure. This composition, offering as it does an appreciable reduction in wool re-

*Textile Series Report No. 107—"A Survey of 10-Ounce Blended Serge Fabrics: Laboratory Evaluation."

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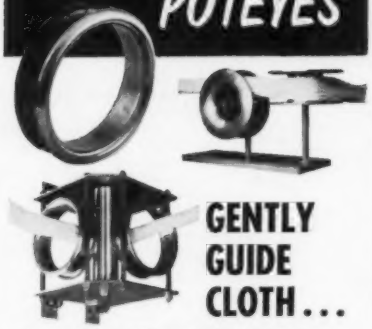

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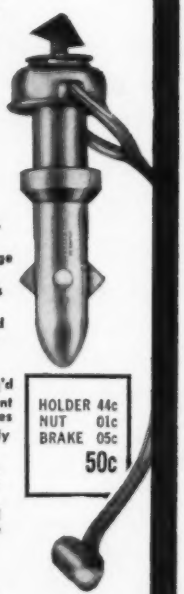

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quirements and a lowering in materials costs with substantial maintenance of functional properties, merits serious consideration as a potential alternate for the all-wool serge. A sewing finish is needed for its manufacture into garments on a production scale.

Nylon and Dacron. The incorporation of these two fibers, at the levels evaluated, causes no significant change in the comfort or appearance rating of the fabric, and results in an appreciable increase in durability. On the other hand, thermal protection is diminished, all the fabrics exhibiting melt-dripping once ignited. The lowering in thermal resistance is least evident in the 15% nylon blend, and this construction therefore appears the most promising of those in this group as a potential alternate for the all-wool 18-oz serge. The application of an effective sewing finish would be needed for its utilization.

As noted above, the blend containing 20% viscose and 10% nylon approaches the 15% nylon blend in its functional properties, with one exception—its greater ease of wetting. Since the properties of the two structures are so nearly similar, the ternary blend, which is more economical in wool usage, is to be preferred.

Acrylics. In the structures under consideration, the incorporation of any of the three acrylic fibers leads to an increase in bending stiffness of the fabric on exposure to the type of pressing operation usual in wool garment manufacture and in dry cleaning. The effect is largest in the case of dynel (where it is accompanied by surface glazing), intermediate in Acrilan, and least in Orlon. This point apart, the fabrics are broadly equivalent to the all-wool standard in their comfort, appearance, and durability characteristics. They do not equal the all-wool standard in their thermal protection performance, especially at the 30% level. For applications where protection from fire is an important criterion of suitability, these blends are somewhat less desirable than the all-wool standard.

On the basis of tendency to stiffen and glaze in pressing, the relative order of desirability is: Orlon, Acrilan, dynel.

Like the nylon and Dacron structures, those containing the acrylics require the use of a sewing finish for satisfactory garment manufacture.

Over-all order of desirability of experimental fabrics. The fabrics recommended for field use are: (a) 70/20/10 wool/viscose/nylon, (b) 85/15 wool/nylon, (c) 70/30 wool/viscose.

There are forms of wear in which thermal protection is a minor factor in the over-all merit rating; examples are service clothing and such combat garments as are worn under an outer layer of thermally resistant clothing. For such applications the following materials, in addition to those listed above, are considered suitable, in the order given: (d) 70/30 wool/nylon, (e) 70/30 wool/Dacron, (f) 70/30 wool/Orlon, (g) 70/30 wool/Acrilan.

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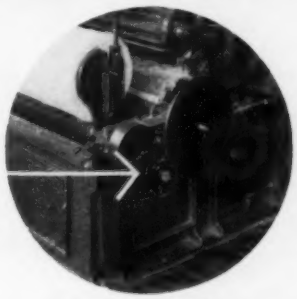

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The ALDRICH *Synchronized Single Process* *Picker...*

A BIG HELP TO BETTER YARN

For uniform yarn, the modern mill with few doublings, and long drafts, needs very uniform picker laps. These laps must be uniform inch-by-inch. The yard-by-yard variation of the laps has no effect whatever on the evenness of the yarn from yard to yard. One yard of average picker lap makes about seven or eight miles of 20's yarn, and the short-term variation in this yarn cannot be affected by the variation between one yard of lap and another.

It is the short-term variation in the lap that counts. A smooth, well felted lap makes more uniform card sliver than a lumpy lap.

The Aldrich Synchronized Single Process Picker makes a lap out of a lap instead of from a box full of loose, irregularly lumped cotton. This principle of making the lap out of a well felted lap assures more uniform inch-by-inch weight in the finished lap, and more uniform sliver, roving and yarn.

AldricH MachinE WorkS
Greenwood, South Carolina

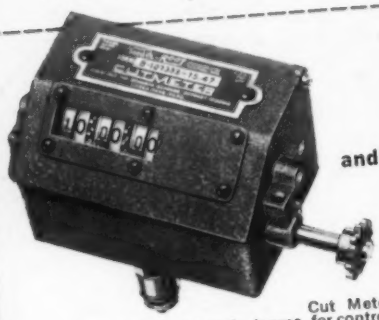
Veeder-Root helps you Cost-Control your Mill...

From Pick Counters...

2-3-4 Pick, Hank, Yardage & Knitting Machine Counters

These flexible counters record production separately for each of 2, 3, or 4 shifts, providing a basis for wage payment, production planning, production efficiency, calculations, etc.

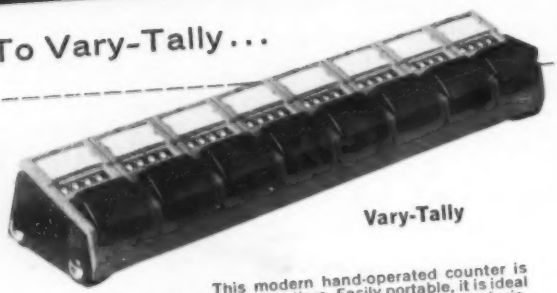
To Loom-Cut Meters...



Loom Cut Meters and Predetermining Counters

Cut Meters are predetermining counters for looms, for controlling lengths of cloth woven, without cut marks . . . and thus avoiding over-runs and short pieces.

To Vary-Tally...



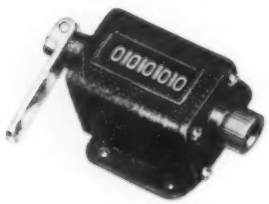
Vary-Tally

This modern hand-operated counter is arranged compactly on stands in tiers. Easily portable, it is ideal for order, stock, inventory control, sales and market analysis, payroll denomination, estimates, traffic control and product inspection. Can be supplied in any of 67 combinations up to 6 tiers high and 12 units wide.

Pick counters, designed to help you control your production; loom cut meters for presetting cut-lengths; Vary-Tally for hundreds of order, stock, inventory control, inspection, analyses uses — These are but a few of the many Veeder-Root counters which can make your profit-picture brighter.

Veeder-Root counters help modern mills to *Countrol* production and costs . . . with accurate, up-to-the-minute data. Your local Veeder-Root representative can give you details on how to completely equip your mill with these dollar-saving counters. Call him in today.

Small Reset Counters



Used on a wide variety of textile machines, including breakers, winders, marking machines, knitting machines and bobbin strippers.

Hosiery Dozens Counter

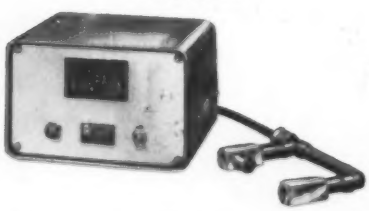
Used in inspection or on knitting machines (as a production counter) . . . shows single pairs and total dozens count.

Double-Wheel Measuring Counters

Ball Bearing — "Exact Ratio" Geared Reset Counter registers linear units (feet, yards, ½ of a yard) as material passes under the friction wheels.

High Speed Reset Double Wheel Counter runs suitable from a shaft, measuring drum, cloth, paper, or other material at speeds up to 6,000 rpm or 8,000 cpm.

Count/Pak



One of the new Veeder-Root Count/Paks — an economical device for high velocity, noncontact counting and controlling. Ideal for use on bobbin strippers, also used on folders to permit multiple folder control by a single operator. Speeds up to 2,500 counts per minute with absolute accuracy.

Reset Magnetic Counters

Base or panel mounted. Ruggedly built for speeds up to 1,000 counts per minute. Widely used for remote indication.

Veeder-Root

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